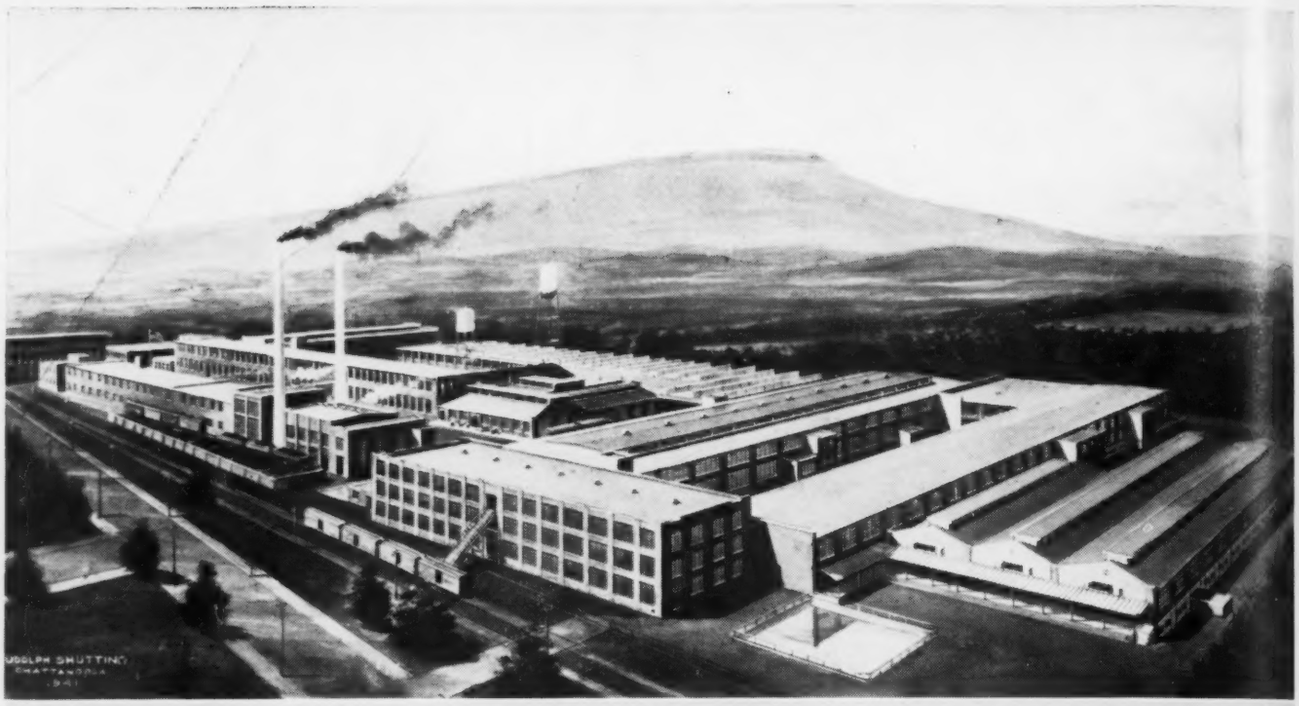
Textile World

APRIL, 1942

NITTING EXHIBITION takes place in the pages of TEXTILE WORLD
stead of in the Auditorium at Atlantic City



CONTINUOUS SERVICE

THE Peerless Woolen Mills of Rossville, Georgia, one of the largest manufacturers of woolen piece goods for men's, boys' and women's wear, blankets and mackinaws in this part of the country, have just completed their fifth major improvement in six years.

In 1936 Robert and Company were called in to undertake a complete reorganization of the production facilities of this mill. During the six-year period, we have carried out a series of extensive engineering projects for the Peerless Woolen Mills, the nature of which drew upon our wide experience in all phases of textile work.

Today our staff stands ready to serve your needs, regardless of their scope, with the same efficiency and exactness that have characterized our work during many years of close association with the textile industry.

PROJECTS COMPLETED for PEERLESS WOOLEN MILLS

1936 Carding and Spinning Mill
1936 Weave Shed
1940 Stock Preparation Department
1941 Dye Plant
1942 Boiler Plant

ROBERT AND COMPANY

INCORPORATED

Architects and Engineers

NEW YORK • ATLANTA • *WASHINGTON*

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PUBLIC LIBRARY
APR 22 1942

The Best Shuttle

for Automatic Box Looms
is a Draper Shuttle

The Best Shuttle-Maker for your looms is the maker who knows most about all sorts of weaving conditions — with the most experience in meeting the demands of every fabric As Loom Builders we have that knowledge and experience

We have designed and made 9765 Kinds of Shuttles for our own and other automatic looms More than 3500 of these kinds are being currently sold Draper Shuttles are custom-made to specifications for your particular weave They are made on Precision Machines that make each Shuttle the exact duplicate of its mates

In the best equipped Shuttle-making plant in America each Draper Shuttle must pass through the hands of from 161 to 219 machine operators and skilled workers and through from 96 to 124 machines

A Good Shuttle is
First Aid to the Weaver

DRAPER CORPORATION

Hopedale Massachusetts

Atlanta Georgia Spartanburg S C

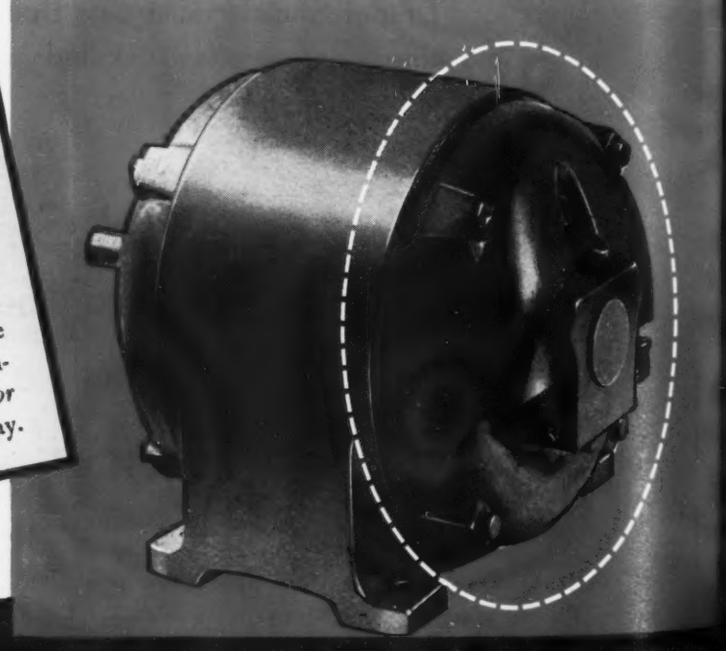
LOOK at the

BEFORE YOU BUY!

Allis-Chalmers New Lo-Maintenance Moto With "Safety-Circle" Protection Gives Yo All-Around Protection . . . More Dependabl Power For Your War Production Needs

IT'S NEW . . . it's different . . . it's ready NOW when it needed most! Allis-Chalmers NEW Lo-Maintenance Moto with "Safety-Circle" protection gives you all-around enclosur of vital parts!*

Other motors may be "protected," but just compare the with "Safety-Circle" protection — complete, all-around pr tection that extends underneath as well. To foremen, supe intendents and maintenance men this means more service an



SEE HOW "Safety Circle" GIVES YOU PROTECTED ENCLOSURE OF ALL VITAL PARTS

Look at the "broken-circle" design of other motors with exposed undercarriage and incomplete protection. Compare this to "Safety-Circle" construction that guarantees *all-around protection* of vital parts.

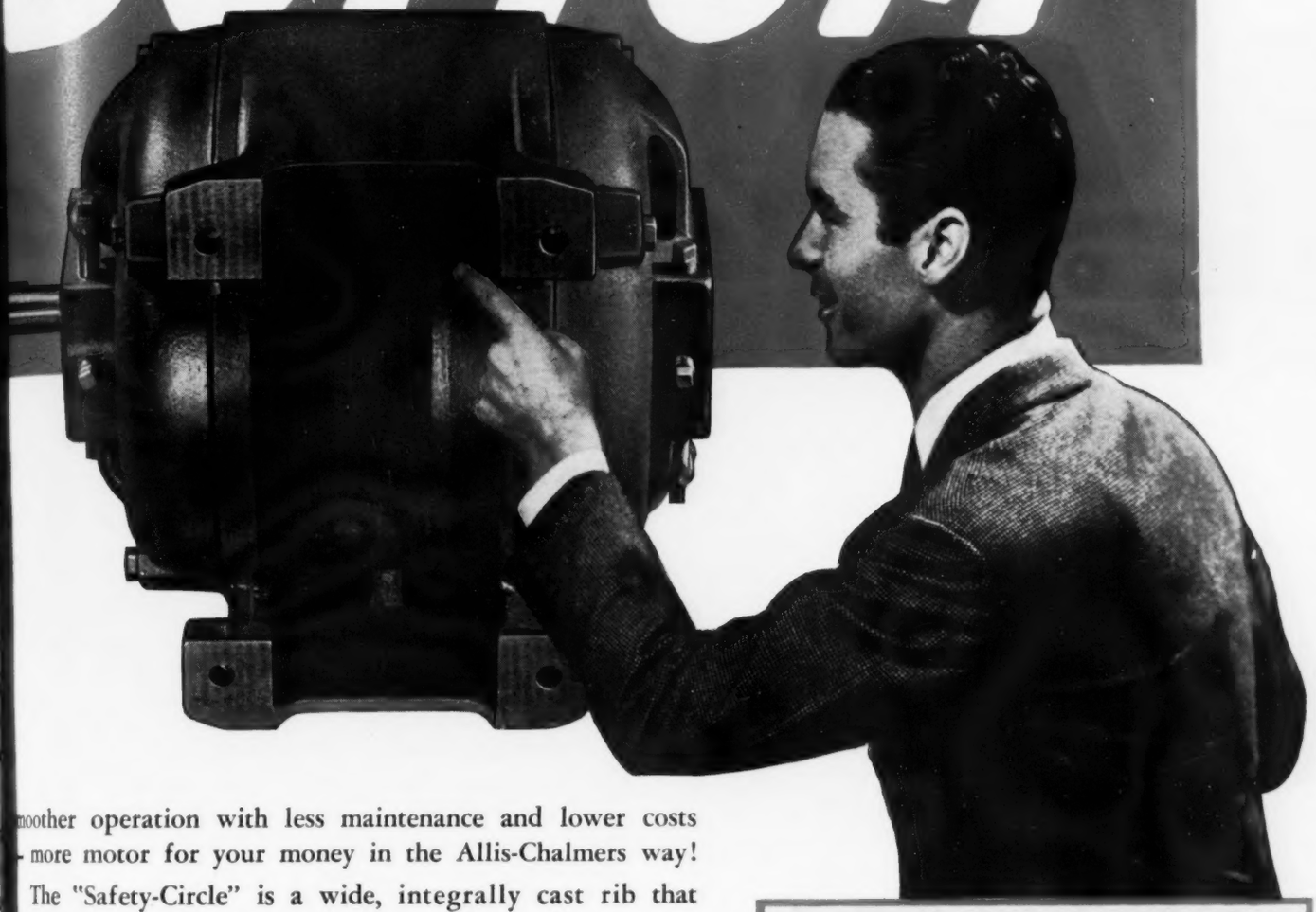
Acting as an anchored shock absorber, it gives the entire structure of the motor and all its parts high resistance to blows, knocks, falling objects — keeps your motor in factory-fresh condition for its entire life under normal operating conditions.

To foremen, superintendents, and maintenance men it means more service and smoother operation with less maintenance and lower costs—*more motor for your money* in the Allis-Chalmers way.

ALLIS-CHALMERS MILWAUKEE

ALLIS-CHALMERS LO-MAINTENANCE

BOTTOM



moother operation with less maintenance and lower costs – more motor for your money in the Allis-Chalmers way!

The "Safety-Circle" is a wide, integrally cast rib that orms an unbroken circle of protection around the stator hamber . . . acts as an anchored shock absorber . . . gives he entire structure of the motor and all its parts high sistance to blows, knocks, falling objects.

In covering the bottom of the motor, the "Safety-Circle" eeps out dust and dirt and foreign particles that cause rasive wear and tear to a motor . . . yet it permits com-lete ventilation of all interior parts.

From frame to shaft . . . from bearing to bearing the EW Lo-Maintenance Motor is loaded with dependable ower, extra performance to meet today's heavy production hedules. Available in ball-bearing or sleeve-bearing types.

Get the complete story! Write Allis-Chalmers, Milwaukee, isconsin, for Bulletin No. B-6210. Or call the engineer in e district office near you.

A 1498

Don't confuse this NEW motor with higher-priced motors for so-lled special purposes. All the extra advantages of this standard motor e yours at no extra cost!

Extra Protection

IN EVERY PART, TOO!

- Increased cross-strength and inter-phase insulation improves efficiency of distortionless stator.
- Indestructible rotor keyed to shaft, turned to assure accurate, uniform air-gap.
- Improved ball-bearing and sleeve-bearing designs have efficient lubrication features for longer life.
- Oil drains at bottom of bearing for easy flushing, faster maintenance.

CI MOTOR WITH *"Safety Circle"* PROTECTION

Advertising in War Time

Comments by Henry G. Lord

I have been really proud of the Textile World's recent war issues. The editors have done a swell job! I didn't have anything to do with it, so I can give the boys credit without taking any.

But the advertisers are doing a good job, too! I don't mean just taking a lot of space, although they do that. But space isn't advertising.

As I leafed over the many pages, I was impressed with the way in which almost every advertiser has made his space the medium for telling his customers and prospects how they could get the best service from the equipment that they already have installed, as well as telling them what the situation was about procuring new machinery and supplies. A very large percentage of the advertising might be termed "service" ads.

When the demands for war materials made it necessary to divert all or nearly all the production of suitable plants from peace-time distribution to defense needs, many concerns, thinking they would have nothing to sell, wondered what message they should put in their advertisements. But as you look over the pages, it is strikingly evident that more than ever before they have found the answer. Manufacturers are giving vital information as to how to cope with the labor shortage; what to expect in the way of material and supplies; how to keep machinery in good repair; how to speed up production; how to convert equipment to new production; how to use new materials, etc. The advertisements answer the questions that are in the mill man's mind in this war time. There is mighty little competitive bragging and a great deal of constructive information.

American industry is in greater need of sound help than ever before in its history, and *every* advertiser is in a position to pass on to those who need it, important information that he must of necessity, have because of his intimate knowledge of his own product or service.

Advertising has come a long, long way from the "horse and buggy" days of keeping your name before the public with a picture of the plant and a big type line reading "Builders of Textile Machinery." That's about what it was like in the old days. I have just been looking over some early issues of Textile World. The advertising was mostly of the card variety and was seldom changed until the cut wore out and a new one had to be substituted.

I used to do my best to get some of the larger advertisers to vitalize their advertising and make it informative, but I think there was an impression that it would be undignified to depart from the old sign-board advertising. I do not know that I can blame the advertisers of fifty years ago; they were machinery builders and not advertising professionals. In the early days practically no advertising in business papers was placed by advertising agencies, but today a very considerable proportion comes through agencies; they and the progressive sales and advertising men in the large companies and in the publishing organizations are responsible for the change in concept of modern advertising. I have always taken satisfaction and pride from my connection with the industrial press. The industrial press has been a potent factor in the development of our wonderful American modern industry and was never more helpful than it is today.

HENRY G. LORD, ***founder of Textile World and president, Bragdon, Lord & Nagle Division, McGraw-Hill Publishing Co.***

Mr. Donald Nelson says...

"Every one of the problems we face is bigger than any one of us"

If it's a problem in dyestuffs... let us help.

WE'RE AS CLOSE TO YOU AS THAT TELEPHONE AT YOUR ELBOW!

The ever increasing requirements of our Government must be met . . . When it comes to dyestuffs, we can assist you to meet the specifications for:

- WOOLEN and WORSTED FABRICS
- WOOLEN BLANKETS
- WOOL, COTTON, and RAYON LINING CLOTHS
- COMFORTER CLOTH
- ALBERT TWILLS, SILESIAS
- SOCKS

Let's all work together on the production line.

CIBA Company Incorporated

Sole Representatives of · SOCIETY OF CHEMICAL INDUSTRY IN BASLE

Vat Dyes of · THE DOW CHEMICAL COMPANY

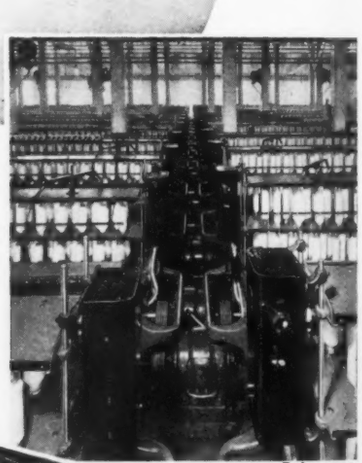
P. O. BOX 25 — STATION C.
GREENWICH & MORTON STS.
NEW YORK

BOSTON · CHICAGO · MONTREAL · CHARLOTTE
PROVIDENCE · SAN FRANCISCO · PHILADELPHIA

ROCKINGHAM *goes* SACO-LOWELL

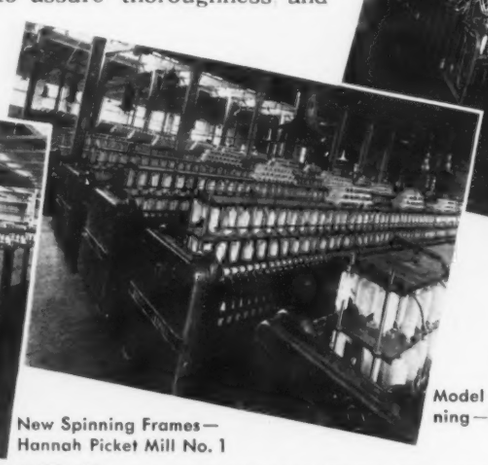
The management of the mills in Rockingham became aware of the advantages inherent in the new cotton spinning equipment. They appreciated the importance of the trend toward simplification in cotton-spinning processes and watched with interest the ever-increasing number of mills planning to carry on programs of modernization. As both capable and practical manufacturers and business men, they also knew that even with sound management, skillful manipulation and efficient supervision they could not operate their good but obsolete equipment profitably in competition with mills having the indisputable advantages of newer and more productive machinery.

In consultation with their own managements and our engineers, a series of studies and plans were prepared. The modernization program just completed was a long-range one . . . with plenty of time spent in preliminary studies to assure thoroughness and accuracy.



Nested Motor Drives on New Spinning—Steel's Mills

Controlled Draft Roving—Entwistle's Modern Card Room.

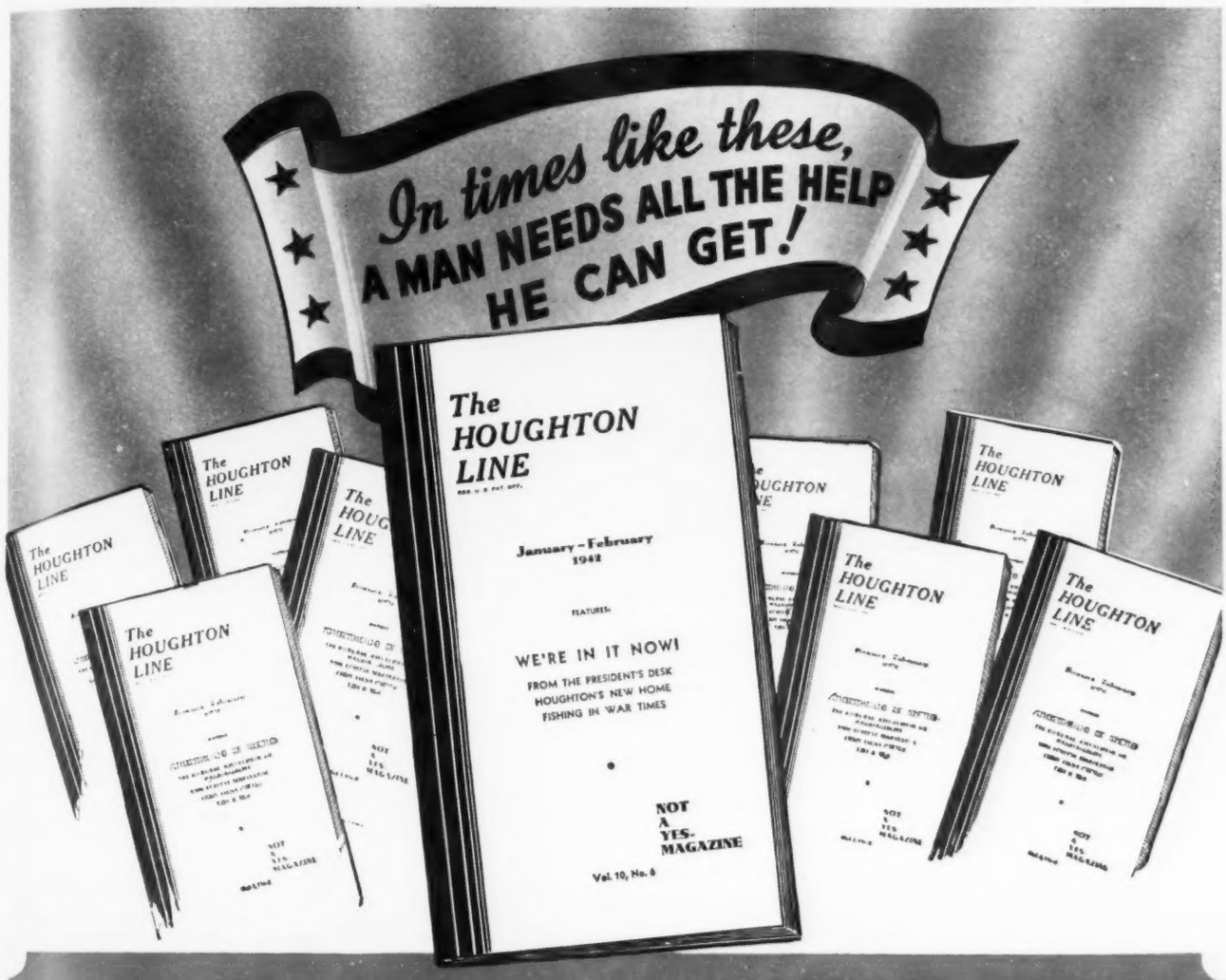


Model 38 Better Draft Spinning—Pee Dee Mill No. 2

New Spinning Frames—Hannah Picket Mill No. 1

SACO-LOWELL SHOPS 60 BATTERYMARCH STREET, BOSTON, MASSACHUSETTS

Charlotte, No. Carolina Greenville, So. Carolina Atlanta, Georgia



CAN *YOU* USE AN EXTRA 77 YEARS OF EXPERIENCE?

As industry changes over from peace-time production, plant men face many new problems—new types of cloth for army use, wetting out, scouring, stock lubrication, textile lubrication, leather belting, etc. These problems are covered regularly in the Houghton LINE, which for 34 years has been sent to industrial plant executives the world over.

We believe we can contribute materially in the present emergency, not only with products and service along these lines, but also by increasing the circulation of the LINE to cover more men who have been stepped up to new and unfamiliar responsibilities. If you do not now receive the LINE and would like to enjoy its frank business comment as well as its practical processing articles, send us the coupon below.

Oils and Leathers
FOR THE INDUSTRIES

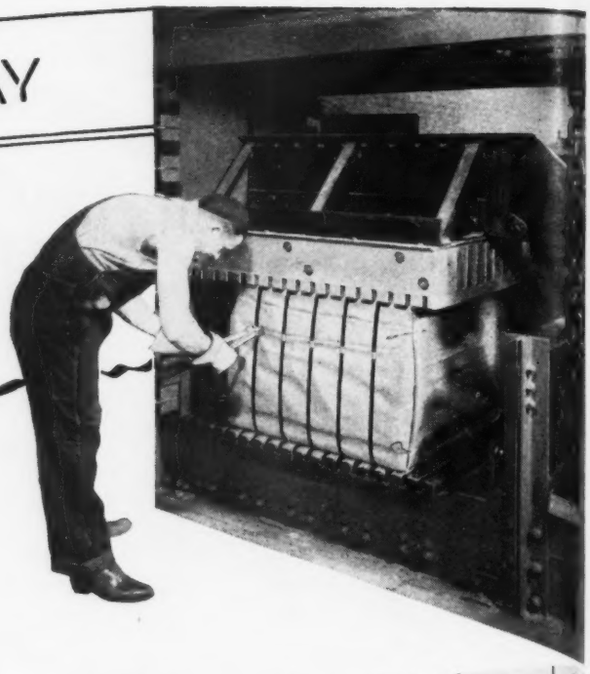
Manufactured by
E. F. HOUGHTON & CO.
303 W. Lehigh Avenue, Philadelphia
Plants: Chicago, Detroit, Charlotte

E. F. HOUGHTON & CO., 303 W. Lehigh Avenue, Philadelphia, Pa.
Gentlemen: Please enroll me to receive the "Houghton Line" regularly without charge or obligation.

Name_____ Title_____
Firm_____
Address_____
City_____ State_____ TW

ORDER OF THE DAY

Utmost speed in delivery
of vital textile products



ACME STEEL PRODUCTS MAKE TEXTILE SHIPMENTS "Bound to Get There" FASTER

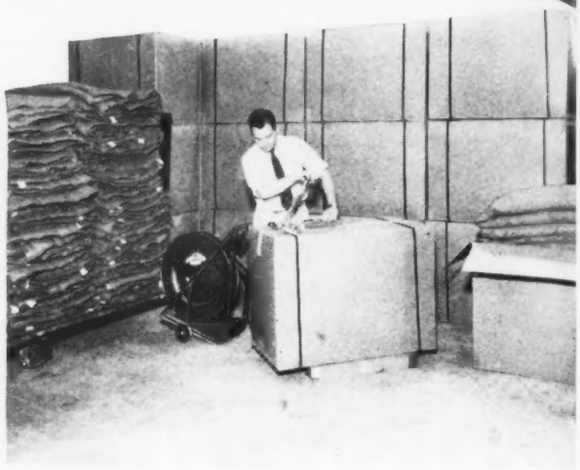
TODAY'S war program demands textiles and more textiles — and it demands them quickly. Acme Steel products aid many mills to get more speed in the packing rooms — and keep shipping in step with production.

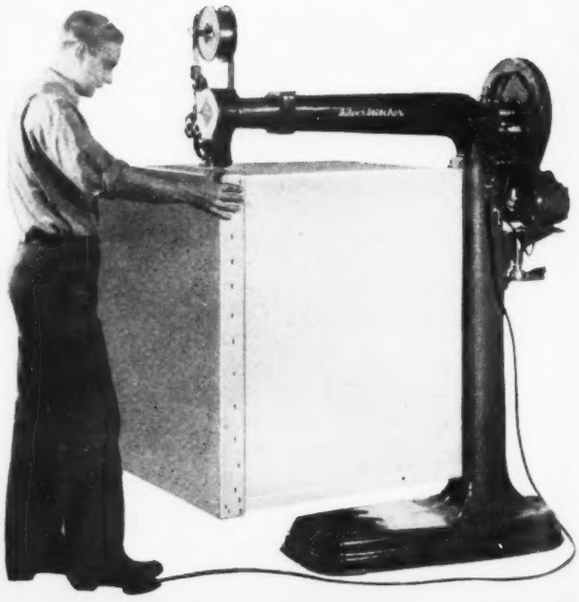
Used for baling (upper right) Acme Bale Tie Bands make possible the compressed type of pack which saves valuable shipping and storage space. Tare weight too, is reduced — thereby lowering shipping costs.

The illustration (middle right) shows comforters, destined for the U. S. Army, being packed easily and quickly by the Acme Steelstrap Process. The automatically seal-fed strapping tool used by the operator speedily tensions, seals and cuts the strap with two easy movements. Note the handy Acme Reel Stand which accommodates a coil of strap as well as the seals.

A combination of Acme Steelstrap and Acme Silverstitcher advantages are being realized by many textile men. Box stitching is faster and easier with Acme Silverstitchers (lower right). Often sealing costs are cut as much as 50%. There is an Acme Silverstitcher for every carton stitching application.

Write today for full information on Acme Steelstrap, Bale Tie Bands and Silverstitchers . . . to help you assure the fast, safe and economical arrival of your Victory products.





ACME STEEL COMPANY 2838 ARCHER AVENUE, CHICAGO, ILLINOIS

HERE ARE THE COTS FOR

EXTRA-HEAVY DUTY

YOU CAN COUNT ON Armstrong's Accotex Cots to show exceptional wearing qualities . . . even where operating conditions are unusually severe. For this reason, these improved synthetic rubber roll coverings are recommended particularly for heavy-duty jobs—for example, on back line long-draft roving frame rolls and on rolls spinning coarse yarns. Because of their high moisture-resistance, these long-wearing cots are also ideal for use on equipment of the down-stroke wet twisting type.

Accotex Cots are ready-glued for quick assembly, are highly resilient, and are not affected by textile solvents. Available in all the sizes your mill may require, these cots can be economically rebuffed several times for extended service.

Armstrong has been manufacturing quality roll coverings for more than twenty years . . . including seven years of research and development in the compounding of synthetic rubber roll coverings for textile use. So when you buy from Armstrong, you buy from an organization that understands your problems . . . and can help you solve them with unbiased recommendations on roll coverings.

Ask your Armstrong representative to tell you about Accotex Cots. Or write direct to Armstrong Cork Company, Textile Products Section, 927 Arch Street, Lancaster, Pennsylvania.

SEVEN BIG ADVANTAGES

1. UNIFORMITY—Homogeneous composition assures uniform wear and equal life of all Accotex Cots.
2. SEAMLESS—No troublesome seams to open and shorten life.
3. RESILIENCE—Nonthermoplastic and highly resistant to flattening.
4. DURABILITY—Long life even under severe operating conditions.
5. GOOD COEFFICIENT OF FRICTION—Better drafting, less eyebrowing than with other synthetic cots.
6. READY-GLUED—Inner surface coated with water-soluble glue to enable quicker, cheaper assembly.
7. OIL-RESISTANCE—Unaffected by oil, water, dyes, or textile solvents.

ARMSTRONG'S ACCOTEX COTS

CORK COTS • ACCOTEX APRONS

YOUR Uncle Sam needs some 350 lbs. of textile products per soldier. These products, made to strict specifications, start with YARN. Quality production and quantity production of good yarn depends in no small measure on the *PERFORMANCE* of RING TRAVELERS in spinning, twisting and throwing. "U.S." Ring Travelers are serving to speed America's yarn production for war purposes because they, too, are products of strict specification and scientific control—the finest Ring Travelers than can be produced for each specific requirement of processing silk, wool, rayon, cotton.

The Travelers that KEEP GOING

U.S. RING TRAVELER CO.

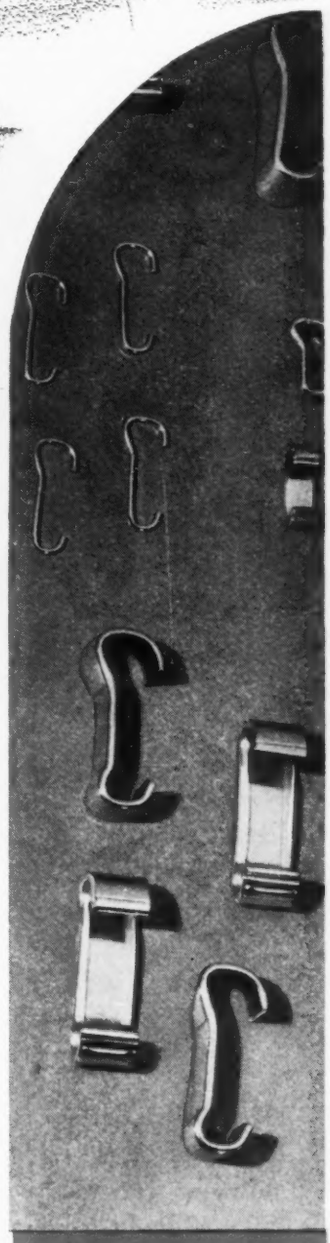
U.S. RING

NE-BOW

PERFECT BALANCE

BEVEL EDGE

HEAT CONTROL



What does this mean to YOU, as a user of Ring Travelers?

It brings you several exclusive U. S. developments that will *cut your costs* and increase your yarn output.

The NE-BOW is specifically designed to prevent yarn ends from flying out—to provide ample head-room for threading—and full play of the traveler (to prevent binding on the vertical ring). Note that "bend inward" at the top of the horn—small, but mighty important for *better performance.*

The PERFECT BALANCE twister traveler weighs the same on *both sides* (open and closed). The secret is the way the straight part of the shank is in the line of the center of gravity. This shank distributes lubricant (as well as wear) evenly and over a wide area. This traveler will not pivot away from the ring surface in twisting silk and rayon yarns . . . no unthreaded ends due to "twist" . . . *better performance.*

The BEVEL EDGE is one of the greatest pioneering "U. S." contributions to the smooth spinning and twisting of textile fibres. By carefully eliminating angular edges, we give you uniformity of tension never before attained . . . more even yarn, less "fly." No wonder mill men are enthusiastic over this *better performance.*

HEAT CONTROL means better metal—and dominates "U. S." Traveler production! During the last few years we have completely changed over our gas-fired carburizing ovens, constantly increasing their inherent accuracy of control. Both carburizing and tempering ovens are electrically controlled through pyrometers—for *better performance.*

You can easily PROVE the better performance of U. S. Travelers in *your* yarn production! Try them! Send for samples and prices . . . or ask us about having a "U. S." study of spinning operations made in your mill, with a stroboscope. Write—better still—WIRE TODAY.

A TRAVELER FOR EVERY FIBRE

Sold under these trade names

- Bowen Round Point Travelers
- Bowen Square Point Travelers
- Bowen Improved Vertical Bronze
- Bowen Patented Bevel Edge
- Bowen Flat Oval and Round Wire Travelers
- Bowen Patented Ne-Bow Vertical
- Bowen Patented Vertical Offset

U. S. RING TRAVELER CO., Providence, Rhode Island

AMOS M. BOWEN, PRES. AND TREAS.

Sales Representatives:

NEW ENGLAND
Carl W. Smith
Herbert J. Smith
both c/o U. S. Ring Traveler Co.
P. O. Box 1187, Providence, R. I.

SOUTHERN
William P. Vaughan — P. O. Box 792 Greenville, S. C.
Oliver B. Land — P. O. Box 158 Athens, Georgia
Torrence L. Maynard — P. O. Box 456 Belmont, N. C.
William H. Rose — P. O. Box 792 Greenville, S. C.

MID ATLANTIC:
M. Lee Bolton
P.O. Box 7234
Philadelphia, Pa.

TRAVELERS

FOUR YEARS AGO an executive in Germany's largest textile research laboratory said, "After several years' work we have concluded that it is not feasible to affix inert pigments to textile fibres with resins. We don't believe it can be done practically. We are giving up the project."

One month before the war started, the same man, viewing samples of textile printing with Aridye* pigmented emulsions, said, "So the Aridye Corporation turned the trick!" We can only guess what he said later to his research staff, who had told him it couldn't be done.

This may well be considered one of the first American research victories of the war—one which made it possible for a textile finisher to use a printing method that was a definite "improvement in the art of textile printing" to quote from the Aridye Corporation's pigment printing patent.

And Now—PIGMENT-DYEING! *The full significance of this development commands the grave attention of every textile finisher in this emergency. Now—and we mean this minute—the textile finishers in this country, without lowering their standards, can obtain plain shades by this new pigment-dyeing method which uses relatively abundant materials. This will make available for military purposes much needed materials and production capacity.*

*Trade Mark Reg. U. S. Pat. Off.

ARIDYE CORPORATION • A SUBSIDIARY OF INTERCHEMICAL CORPORATION

"Dummkopf!
Warum konnten wir das nicht machen?"

(which freely translated means: "Why couldn't we make that?")

The textile industry is in a position to give this direct aid to our victory program. It is an advantage held in this country which we cannot afford to yield. For example, it has been estimated that a million yards of a particular taupe shade, pigment-dyed with Aridye colors, represented an approximate saving of 11,500 pounds of conventional dyes.

Comparative tests show that the industry's high standards of fastness are more than met by this method of pigment-dyeing (Aridye Corporation's U. S. Patent No. 2,248,696).

We believe it will find general use when superior lightfastness is required on special rayon fabrics, and when lightfastness plus scrubfastness is required on cotton fabrics, such as shirtings and work clothes. Further comparative tests, covering Mildew Effectiveness, Resistance to Abrasion, Chlorine Retention, Air Porosity and Presence of Primary Irritating Substance, have been made by the United States Testing Company, Inc., under Tests Report Nos. 25568 dated December 31, 1941, 25568 dated January 20, 1942 and 26163 dated January 19, 1942. Full copies of any of these reports will be sent upon request.

Investigate these and the other advantages of dyeing by the Aridye pigment-dyeing method. We shall be glad to mail any finisher additional information including our standard form of license, under which a number of dyers are operating at present. Write to Aridye Corporation, a Subsidiary of Interchemical Corporation, Fair Lawn, New Jersey.

Aridye

TEXTILE COLORING MATERIALS

FAIR LAWN, NEW JERSEY • ROCK HILL, SOUTH CAROLINA • PROVIDENCE, R. I.

THE OIL THAT GOES IN HERE MUST HAVE MAXIMUM FILM STRENGTH AND PERSISTENCE OF FILM
THE OIL MUST MAINTAIN A TOUGH, LASTING FILM BETWEEN THE MOVING METAL SURFACES

Here's where Spotting Begins—or Ends!

THE "CORRECT" ANSWER TO THE PROBLEM OF "OIL THROW" IN CAPACITY TEXTILE PRODUCTION:

Problem: Just after hand oiling, a bearing is *flooded*... safe from failure. Just before the next oiling, it may be starved... with only a microscopically thin film between the moving parts.

On textile machinery, oversupply of oil causes excessive leakage which results in "oil throw" and spotting. Therefore, oil must be applied sparingly at regular intervals.

This means a tissue-thin film only is maintained to retard friction, wear, and high power consumption. That's "boundary lubrication."

Answer: To meet those conditions, you need an oil with maximum film strength and persistence of film. It must have easy-scouring properties to make possible quick removal of accidental stains.

Gargoyle Vactra Oils were developed with exactly these characteristics. These oils cling tightly to bearing surfaces... help you minimize wear and power consumption, even with restricted application.

TO HELP MAINTAIN CAPACITY PRODUCTION, CALL IN

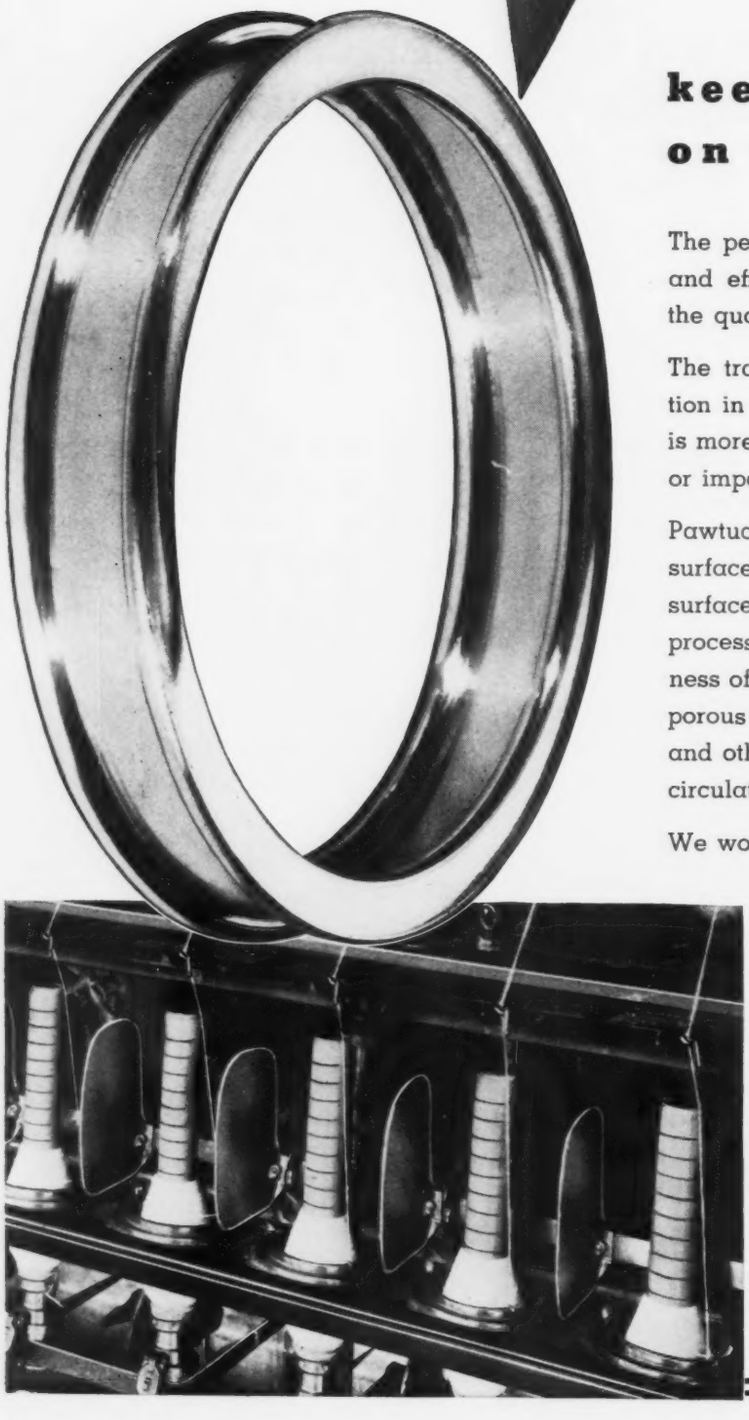
SOCONY-VACUUM for "Correct Lubrication"

SOCONY-VACUUM OIL CO., INC. — Standard Oil of N. Y. Div. — White Star Div. Lubrite Div. — Chicago Div. — White Eagle Div. — Wadhams Div. — Southeastern Div. (Baltimore) — Magnolia Petroleum Company — General Petroleum Corporation of Calif.

GARGOYLE

Lubricants

PAWTUCKET RINGS *Vitritex* FINISH



keep your "*TRAVELERS*" on the job longer!

The performance of a traveler — its long life, speed and efficiency — is almost entirely dependent upon the quality of the ring on which it is used.

The traveler and ring are an inseparable combination in good production . . . and of the two the ring is more vital, for independently it can either improve or impair the function of the traveler.

Pawtucket Rings give your travelers an operating surface that keeps them at maximum efficiency. This surface — called Vitritex — is made by an exclusive process and has the hardness of granite and smoothness of glass. Its texture is so fine and so nearly nonporous as to be almost impervious to wear, humidity and other destructive elements which are in constant circulation in the spinning room.

We would like to have you make a test in your own spinning room. Write for samples which we will gladly furnish at no cost to you.

GIVE YOUR TRAVELERS
"A TURN FOR THE BETTER"

Pawtucket
SPINNING RING COMPANY
(Subsidiary of Saco-Lowell Shops)

CENTRAL FALLS, RHODE ISLAND

Accepted with Confidence

in knitting mills the world over is the famous red and green box of Torrington Needles. Seldom, in any industry, has a simple package become such a symbol of quality. To the thousands of knitters who are using Torringtons now, and to the thousands who will use them in the future, Torrington assures continued quality through machine-manufacturing methods and improvement through research wherever improvement is possible.

TORRINGTON NEEDLES

Spring Beard

SINKERS · DIVIDERS · SPLIT DIVIDERS

CHECK these advantages of the Torrington Needle Bearing—advantages that have been tested and proved in thousands of applications—and see how every feature can be utilized to fill a wartime need in the design of textile machinery.

1. *The Needle Bearing is available for prompt delivery* on priority orders, in the standard sizes and designs that are most practicable today. Torrington's production capacity has been expanded to care for all essential requirements with the promptness needed to maintain manufacturing schedules.

2. *It is easy to install,* ideally suited for high-speed production line methods. Built as a single compact unit, it is pressed into place in the housing in a quick, simple operation.

3. *It conserves materials* in other parts of your product design. Because the bearing's outside diameter is small in proportion to capacity, you can use small-diameter housings, requiring less material.

4. *It improves product performance* and reduces power requirements, because of its low coefficient of starting and running friction.

5. *It needs little attention* in service. As a result of its efficient system of lubrication, only occasional renewal of lubricant is necessary. Its high load capacity assures long bearing life, even in continuous operation under heavy loads.

Let a Torrington engineer show you how this unusual bearing can help you key your textile machinery designs to wartime conditions. For further details, wire, phone, or write for Catalog No. 116.

THE TORRINGTON COMPANY
TORRINGTON, CONN., U. S. A. • *Estab. 1866*
Makers of Needle and Ball Bearings
New York · Boston · Philadelphia · Detroit
Cleveland · Chicago · Los Angeles · Seattle
San Francisco · Toronto · London, England

EVERY FEATURE FILLS A WARTIME NEED

TORRINGTON NEEDLE BEARING

If someone hit you on the jaw

you wouldn't ask YOU'D ACT!

We've had the "sock" that brings out the champ in a man! We're working for VICTORY in the great American Blower plants, building the Industrial Fans, Blowers, Unit Heaters, Collectors, Fluid Drives and Mechanical Draft Equipment that have to come before the guns and bullets, bombs and shells, tanks, trucks, ships and planes can be produced in overwhelming quantities. We're building apparatus for Army and Navy offensive weapons, too, and we're at it with all our facilities and every ounce of strength.

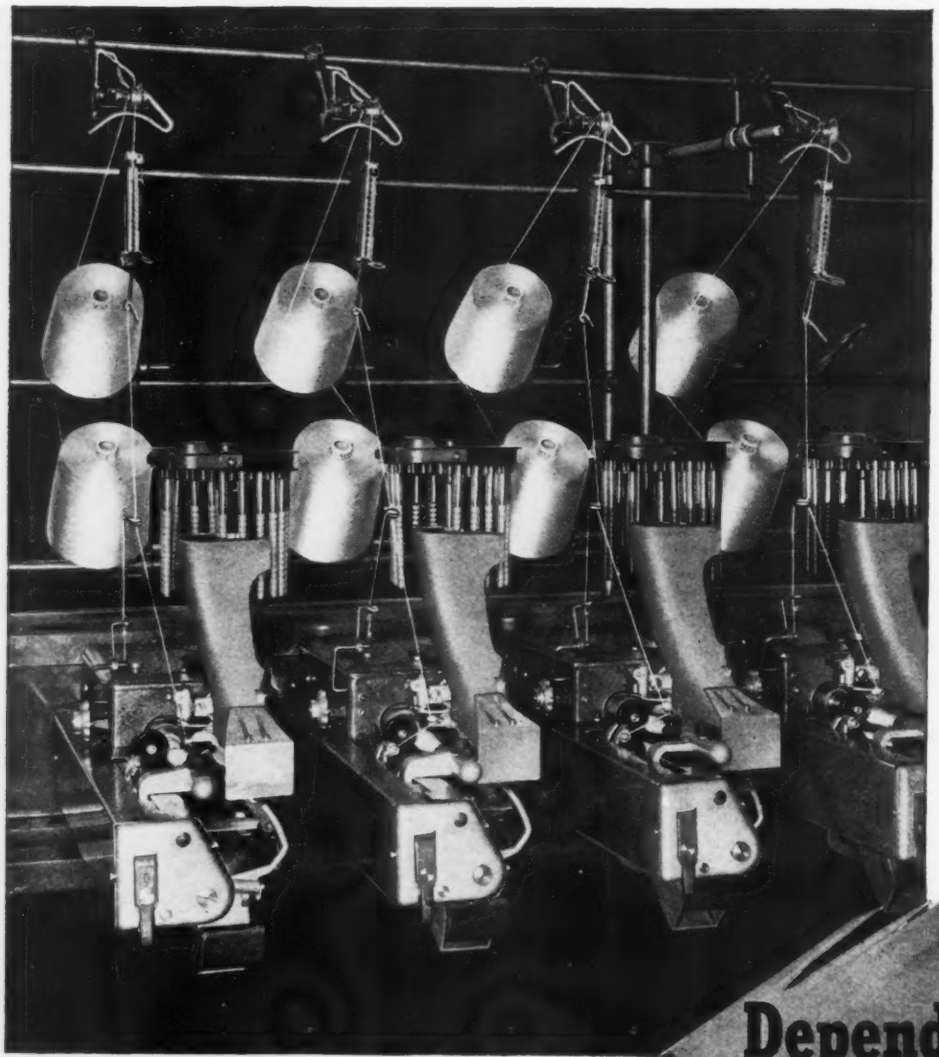
MECH. DRAFT · AIR-CONDITIONING
ERICAN BLOWER
FLUID DRIVES · DUST COLLECTORS

AMERICAN BLOWER

AMERICAN BLOWER CORPORATION, DETROIT, MICHIGAN
In Canada: CANADIAN SIROCCO COMPANY, LTD., Windsor, Ont.

Division of American Radiator and "Standard" Sanitary Corporation

ARE YOU GETTING 90% Efficiency OR BETTER from your filling winders?



Dependable
Productive
Interchangeable

THE WHITIN SCHWEITER
AUTOMATIC FILLING BOBBIN WINDER

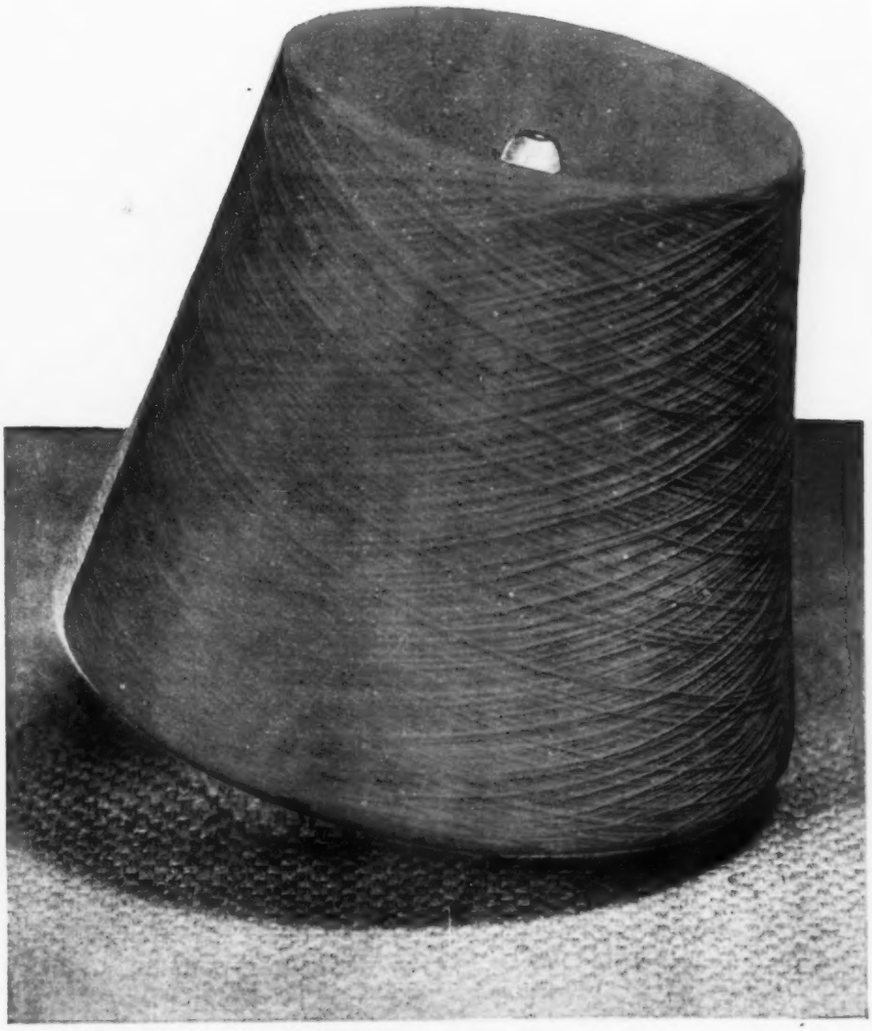
WHITIN MACHINE WORKS Whitinsville, Mass., U.S.A. Charlotte, N.C. Atlanta, Ga.

DOUBLE-CARDED KNITTING YARNS

CROSS COTTON MILLS CO. · DOUBLE CARDED · FINEST QUALITY · MARION, N.C.

For **producing quality** fabrics, knitters find that CROSS Double-Carded Yarns **meet all requirements.**

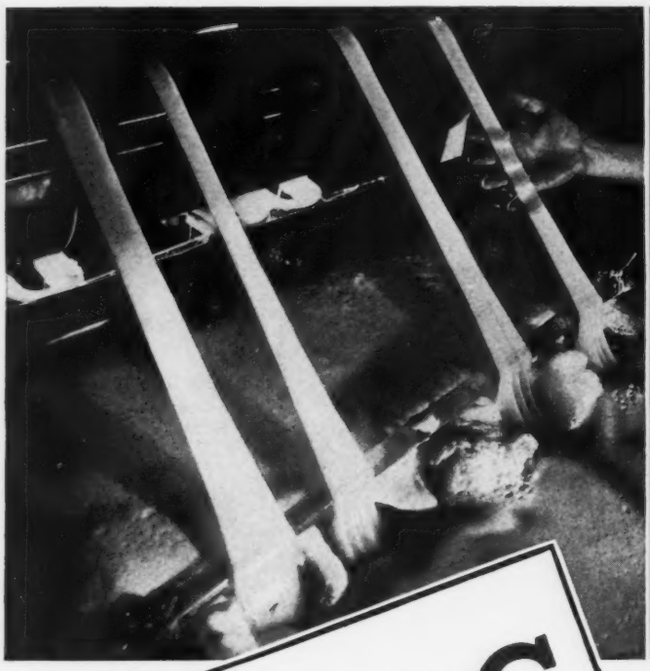
Dyed yarns furnished in pastel shades, for the knitting trade.



KNITTING YARN ON CONES
Range—16's-40's
Single and Two-Ply

CROSS COTTON MILLS CO., *Marion, N. C.*

ALLIES IN MAN'S SERVICE



★ARALAC

The Perfect Fibre for Blended Fabrics

making the nation's wool supply go further

- **Blends with wool, mohair, rayon, cotton.**
- **Combines with felting furs.**
- **Creates distinctive new fabrics.**
- **Takes dyes beautifully.**
- **Already proving itself in commercial use.**
- **Chemically stabilized.**
- **AND CUTS COSTS.**

★Trade Mark Reg. U. S. Pat. Off

Suddenly, the nation knows what it means to face a wool shortage. Conservation of this vitally important fibre becomes a matter of paramount concern.

ARALAC is already helping conserve wool. It can be used in even wider fields. ARALAC is a man-made fibre, possessing characteristics generic unto itself. It does not pretend to be wool. But ARALAC is a protein fibre—just as wool, mohair, camel's hair and fur are protein fibres. It possesses certain of the attributes that make wool so desirable a textile fibre.

ARALAC is sold as cut staple, in any length up to six inches. It comes in 3 denier (matching wool 70's), 5 denier (matching wool 60's) and 7 denier (matching wool 50's).

Let ARALAC help solve your wool problems.

ARALAC, INC.

Taftville, Connecticut

ARALAC, produced by a division of NATIONAL DAIRY PRODUCTS CORPORATION, represents but one of the many contributions this nation-wide organization is making toward the more efficient utilization of America's agricultural resources.

Gentlemen:

To you and to our common cause —now and later— We Pledge Unremitting Effort

Without other change than tightening the belt of our resolve, we here at FIDELITY have shifted from defense to offense in the pace of our production.

As long as eleven years ago we began to prepare for this day.

The matured and disciplined talents of our older and experienced engineers were given the support of keen, young minds whose enthusiasm and vitality they directed into new channels.

New machines and new mechanisms were designed, developed, tested by us and by military and commercial experts. New workers were trained by seasoned and skilled craftsmen.

Old machine tools were obsoleted and replaced with the most modern units until today, with minor exceptions, every machine in the plant is less than five years old. More gages and a larger range of testing equipment were added, so that today tolerances and finishes as fine as four one-millionths of an inch can be measured and maintained.

Organization of tasks, skills and methods were perfected. Both the tempo and the uniform quality of production were so far and so steadily stepped up that today we are producing six times as much per square foot of floor area as six years ago.

The responsibilities for plans which go beyond even the critical war needs of this year and next have been shouldered by this personnel which has already achieved so much. There is no lag in their planning, designing, development work. It is a task in which all of us are cooperating for the good of all. To its continuance we pledge our unremitting efforts.

Herbert W. Anderson
President

FIDELITY MACHINE COMPANY

3908-18 FRANKFORD AVENUE, PHILADELPHIA, PA.

FIDELITY MACHINES FOR PRECISION

American Viscose Corporation
INVITES YOU TO USE THIS FOUR-PLY SERVICE
1 FIBER RESEARCH. In our laboratories and pilot plants, scientists are always busy perfecting available types of rayon yarn and fiber, and developing special types for special purposes.
2 FABRIC DEVELOPMENT. To guide you in the design of "wanted" fabrics—new fabrics which you can produce efficiently—fabrics taking advantage of the properties of the new rayon yarns and fibers.
3 MILL TECHNIQUE. A mill-size plant—the Textile Unit—equipped with standard machinery for every phase of textile production from fiber to finished fabric, to help you solve mill problems.
4 SALES ASSISTANCE. Crown Tested—one of America's most trusted symbols of quality in rayon fabrics, helps sell fabrics every step of the way from grey goods to ultimate consumer. Find out how this selling plan can help you.

CROWN* RAYON is today going into scores of new fabrics. New blends, new weaves, new finishes are appearing almost daily, as market after market turns to this versatile fiber. Amid this welter of new developments, questions are bound to arise—especially among producers whose previous experience with rayon has been limited.

It is to these new users of rayon, as well as to those who are employing rayon in new applications, that our FOUR-PLY SERVICE is devoted. If you have a question involving rayon—from the properties of the fiber to the sale of finished fabrics—it may pay you to bring that question direct to a great rayon headquarters—to American Viscose Corporation. Here, without a penny of cost, you will get practical assistance from men skilled in solving textile problems. We welcome every opportunity to help you.

SALES OFFICES: New York, N. Y.; Charlotte, N. C.; Providence, R. I.; Philadelphia, Pa.

PLANTS AT: Marcus Hook, Pa.; Roanoke, Va.; Parkersburg, W. Va.; Lewistown, Pa.; Meadville, Pa.; Nitro, W. Va.; Front Royal, Va.

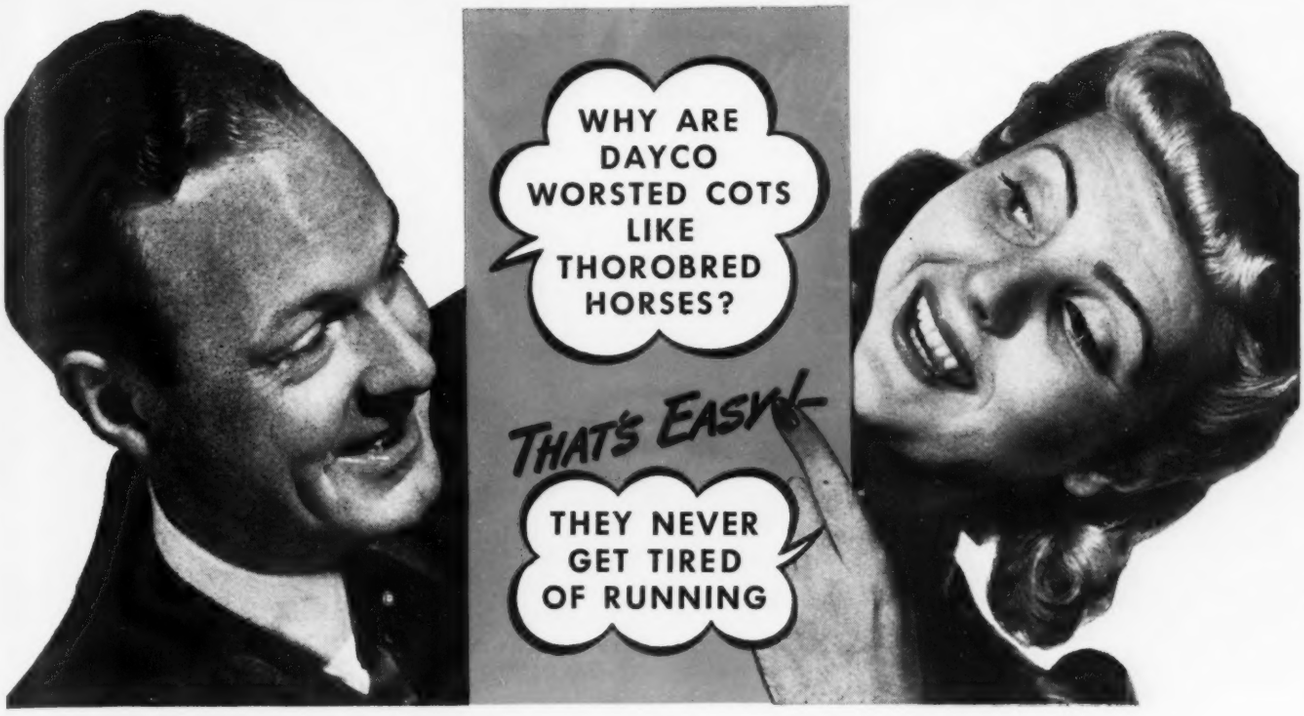
CROWN TESTED AND APPROVED RAYON FABRIC

AMERICAN VISCOSE CORPORATION

WORLD'S LARGEST PRODUCER OF RAYON YARN

*Reg. U. S. Pat. Off.

Copr. 1942—American Viscose Corp.



LONG LIFE DAYCOS OUTPERFORM ALL OTHERS—EVERY DAY!—

Dayco Worsted Cots last so long that it seems they never do tire of running! One mill reports a full year of 24 hour-a-day perfect performance by Daycos . . . still another reports over 9,360 hours of unmatched performance without rebuffing, during 18 months on their toughest assignment.

Now it's obvious that Dayco Worsted Cots eventually need rebuffing, but there's ample proof that revolutionary long life Daycos outlast all other cots *up to twelve times longer* while outperforming them in every way.

MORE UNIFORM YARN—LESS HEADACHES

Because Dayco Worsted Cots produce better work and more uniform yarn, they save Spinning Room Foremen plenty of headaches.

OIL-PROOF DAYCOS ARE EASY TO APPLY

Unlike other cots, easy-to-apply Daycos are oil-proof. They require less tension, reduce labor, cut power costs—eliminate Monday morning resets—need no aging, and are guaranteed not to come loose from the rolls.

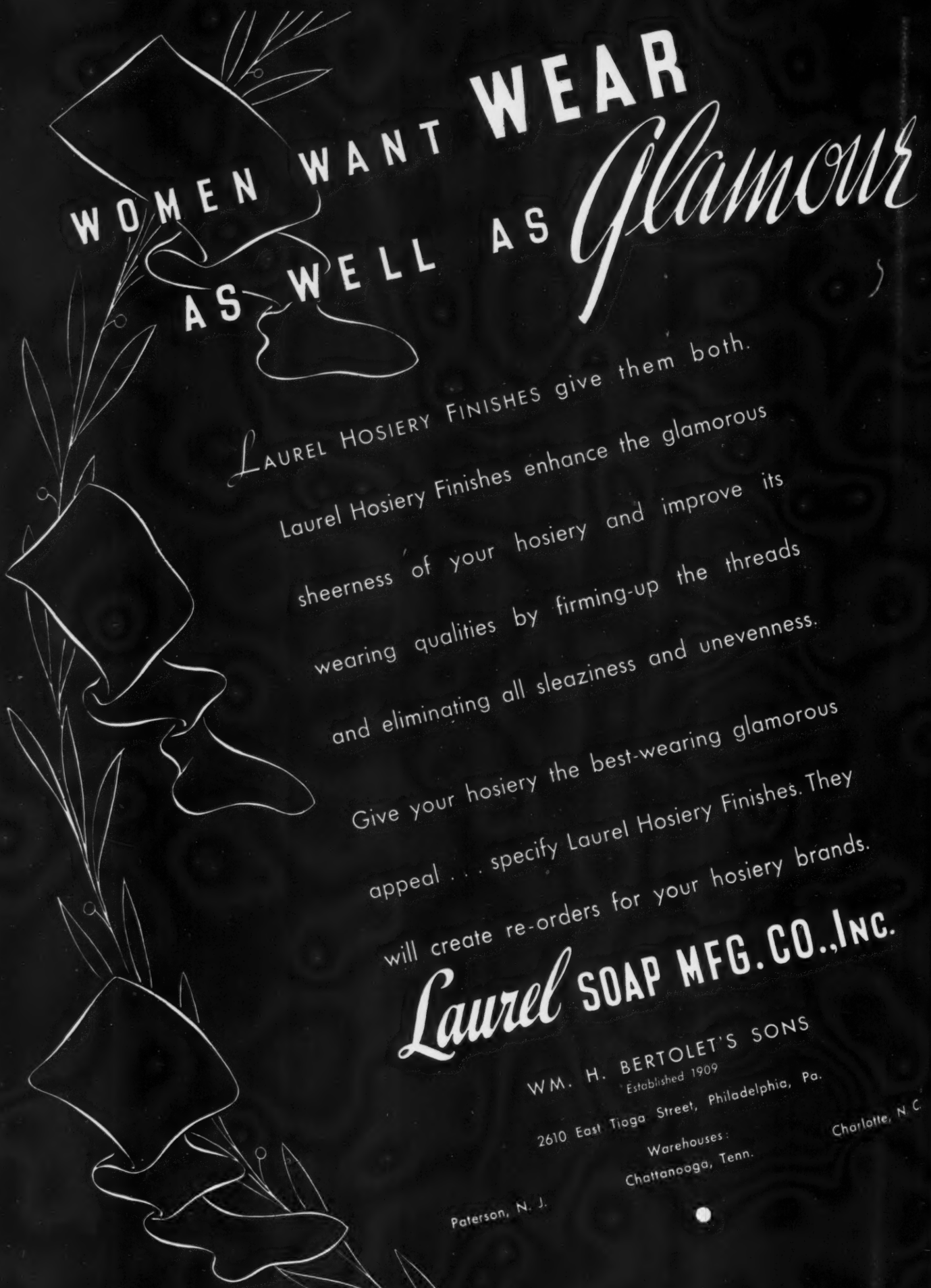
Because long life Daycos outperform all other cots every way, they are preferred by everybody from mill superintendents to roll shop foremen. They've got everything it takes to simplify your schedule, give you more and better production of the numbers you want—when you want them.

THE DAYTON RUBBER MFG. CO.
TEXTILE PRODUCTS DIVISION, Dayton, Ohio
The Originators and Pioneers of Dayco Tempered Roll Coverings

GREENVILLE SALES OFFICE
Woodside Building . . . Greenville, S. C.

EXPORT DIVISION
DAYTON RUBBER EXPORT CORP.
38 Pearl Street, New York, N. Y., U. S. A.

Dayton
Thorobred TEXTILE PRODUCTS
Dayco TEMPERED ROLL COVERINGS-LOOM SUPPLIES
MADE BY THE WORLD'S LARGEST MANUFACTURER OF V-BELTS
Copyright 1942, The Dayton Rubber Mfg. Co.



WOMEN WANT WEAR AS WELL AS *Glamour*

LAUREL HOSIERY FINISHES give them both.

Laurel Hosiery Finishes enhance the glamorous sheerness of your hosiery and improve its wearing qualities by firming-up the threads and eliminating all sleaziness and unevenness.

Give your hosiery the best-wearing glamorous appeal . . . specify Laurel Hosiery Finishes. They will create re-orders for your hosiery brands.

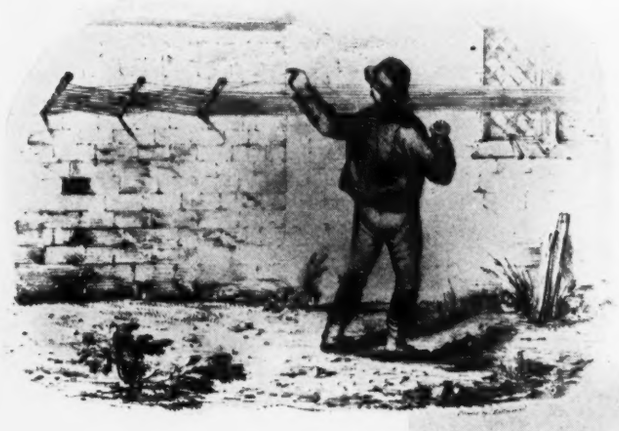
Laurel SOAP MFG. CO., INC.

WM. H. BERTOLET'S SONS
Established 1909

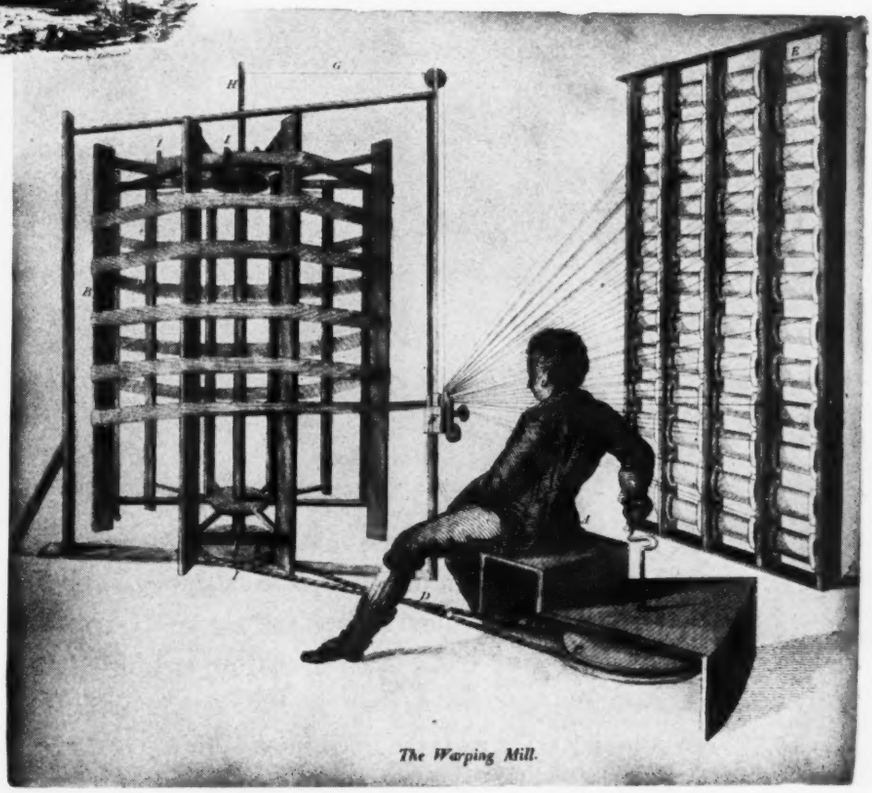
2610 East Tioga Street, Philadelphia, Pa.

Warehouses:
Chattanooga, Tenn.
Charlotte, N. C.
Paterson, N. J.

Did You Ever See a WARP *Walking?*



Rather ingenious, when you stop to think of it—You simply took a spool of yarn and went walking up and down in front of your house, laying the yarn in parallel rows, over and under pegs driven in the wall. That was called "Peg-warping".



The Warping Mill.

ABOUT 1760 some unsung genius, whose name is lost to us, produced the "Warping Mill". This made warping a *continuous* process—greater speed, less handling.

Essentially, the history of commercial textile development is simply one of increasing efficiency—of making processes more *continuous*. Reduce starting, stopping, changing, replacing — and you have achieved textile progress.

Industrial's "Continuous Process" for the production of rayon yarn eliminates the separate bulk operations of spinning, washing, bleaching, treating, drying and twisting and in their place provides individual thread treatment in *continuous* operations. Result—a better product, more uniform, virtually free from knots and broken filaments, and more efficiently produced.

To mills these advantages furnish efficiencies in weaving that are of greater importance today than ever before.

"CONTINUOUS PROCESS" Spun-lo Rayon
Reg. U. S. Pat. Off.

INDUSTRIAL RAYON CORPORATION • Cleveland, Ohio—New York Office, 500 Fifth Avenue

"CALL TO SICK-BAY"

but not a man answered!

Wind screaming through the rigging! Dark, ominous storm clouds piling up in the northeast! And the captain bellowing, "Shorten sail . . . batten down all hatches!".

That was bad news for the bluejackets aboard early American warships. It meant berth decks sealed tight against ventilation—unbearably stuffy—damp, foul-smelling. A breeding place for disease. It meant a sick-bay crowded with stricken sailors.

But American skill and resourcefulness came up with the answer—a ventilating system for warships! The first mechanical ventilating system for warships, installed in 1879 on the famous U.S.S. Richmond, proved an immediate success. In the words of Chief Engineer King of the U. S. Navy, as quoted in the Army and Navy Journal of March 8, 1879: *"After consultation with Mr. B. F. Sturtevant, who has had large experience in ventilating buildings, a contract was made to design and build two exhausting fans."*

And, continues Chief Engineer King, in describing the results of this ventilating system: *"There is no smell of bilge water and no impure air on the berth deck. The officers and crew of this ship enjoy pure air at all times. It is the most healthful, completely ventilated ship that ever sailed under the American flag —or any other flag."*

Today, Sturtevant Ventilating and other Air Handling Equipment is still "In the Navy"... on a large majority of America's fighting ships, old and new—ships ranging from battleships to mine-sweepers—from aircraft carriers to sub-

Sturtevant

Puts Air to Work

for

War Production

Conserving Metal for Planes—During fabrication of sheet aluminum every ounce must be saved—and Sturtevant helps do it! Scrap aluminum is chopped up, then conveyed—entirely by air route—to remelt furnaces at Aluminum Company of America plants.

Toughening Steel for Tanks—To harden steel properly, heat treating furnaces require constant pressure, unfailing air circulation. Chrysler Tank, Caterpillar Tractor and others call on Sturtevant for compressors that help step up capacity—speed production.

marines! It is also supplying the vital blasts of air for thousands of processes and hundreds of industries that are building America's fighting machines.

B. F. STURTEVANT COMPANY

Hyde Park, Boston, Mass. *Branches in 40 Cities*

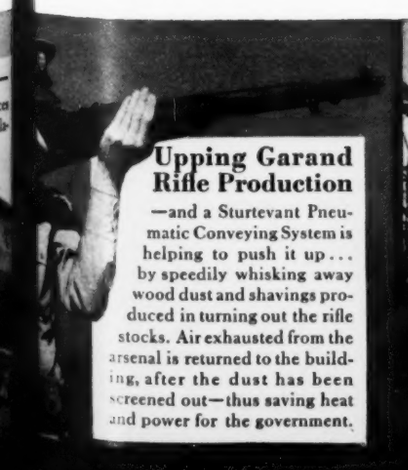
B. F. Sturtevant Company of Canada, Ltd., Galt, Toronto, Montreal

Sturtevant

REG. U. S. PAT. OFF

Puts Air to Work

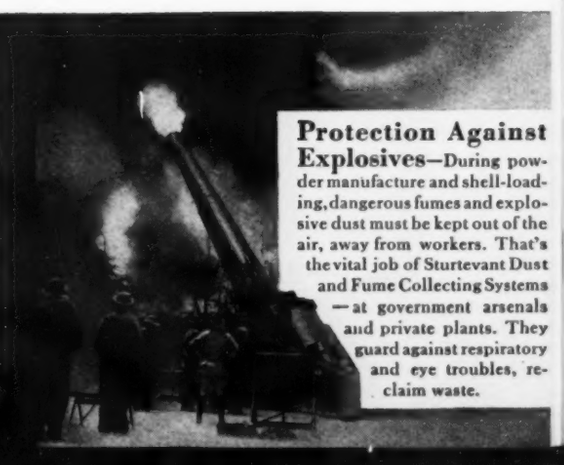
STURTEVANT — FOUNDER OF THE AIR HANDLING INDUSTRY



Upping Garand Rifle Production

—and a Sturtevant Pneumatic Conveying System is helping to push it up... by speedily whisking away wood dust and shavings produced in turning out the rifle stocks. Air exhausted from the arsenal is returned to the building, after the dust has been screened out—thus saving heat and power for the government.

Helping launch more Ships—For high speed Unionmelt Automatic Electric Welding of ships and boilers, at shipyards, Sturtevant Melt Recovery Units make it possible to efficiently collect all of the unfused melt for re-use.



Protection Against Explosives—During powder manufacture and shell-loading, dangerous fumes and explosive dust must be kept out of the air, away from workers. That's the vital job of Sturtevant Dust and Fume Collecting Systems —at government arsenals and private plants. They guard against respiratory and eye troubles, reclaim waste.

ONE OF A SERIES OF ADVERTISEMENTS DESIGNED TO KEEP YOU POSTED ON DU PONT PRODUCTS AND SERVICES

Now . . .

A NEW TEXTILE FINISHING AGENT COMBINING QUALITY WITH ECONOMY

This new synthetic softening agent gives a full, mellow hand when employed in the usual finishing methods. The finish desired from natural fats may be closely duplicated. It is suitable for back starching, back filling and mangle and quetch finishing. It may be used as a pure finish or combined with starches and gums.

As a saturated hydrocarbon sulfonate, Du Pont "Avitone" does not turn yellow or become rancid during storage of the finished fabrics. They remain clean and fresh. Whites stay white, colors bright.

Du Pont "Avitone" is made from raw materials available within the United States. Its low alkalinity and high stability help reduce processing problems to a minimum.

The low cost per pound and the high concentration of "Avitone" place it on an advantageous cost basis in comparison with sulfonated fats.

For both economical and quality finishing, have a Du Pont technical representative assist you in carrying out trials.

DU PONT PRODUCTS FOR THE TEXTILE FIELD

NYLON	ACIDS	RAYON
PEROXIDES	DYESTUFFS	SOLVENTS
WETTING AGENTS	SIZING AGENTS	CLEANING AGENTS
FIRE RETARDANTS	FINISHING AGENTS	SCOURING AGENTS
MAINTENANCE PAINTS	WATER REPELLENTS	

DU PONT
REG. U.S. PAT. OFF.

E. I. DU PONT DE NEMOURS & COMPANY, (INC.)
Wilmington, Delaware

**"Avitone" is du Pont's trade-mark for its hydrocarbon sulfonate textile softening agent.*

Listen to "Cavalcade of America", every Monday evening over coast-to-coast NBC Red network

AVITONE* *by Du Pont*

IMPORTANT DEVELOPMENTS IN NYLON

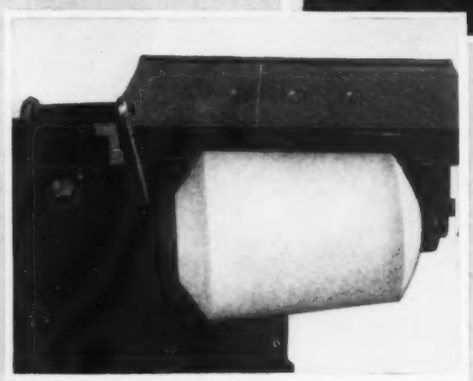
SIZING AND CONING

THE MODEL 76 BARREL WIND ATTACHMENT

1. Note the oval shaped package — no decided tapers or shoulders — just a smoothly curved contour for easy drawing off!

2. The lay is more open in the central part of the traverse than at the ends. Where the package is thickest, the lay is the most open, facilitating uniform steaming and drying.

3. *Production:* the Barrel Wind device is designed so that substantially higher operating speeds than formerly used can be obtained.



END VIEW

TOP VIEW

Type H Pineapple with Patented Pivoted Pressure Roll

THE TYPE H PINEAPPLE ATTACHMENT FOR MODEL 75 CONER

The simplicity of this attachment represents a decided improvement over previous devices of this kind. Operation at higher speeds than formerly, with low maintenance cost, together with the production of superior cones, are natural results.

FOSTER MACHINE COMPANY

WESTFIELD, MASSACHUSETTS

SOUTHERN OFFICE: JOHNSTON BUILDING, CHARLOTTE, N. C.

AMERICAN

SUPER-MERCERIZED

Durene

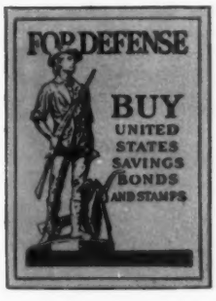
Fabricord

AMERICAN'S Special 3-ply yarn for English Rib Construction

AMERICAN

YARN AND PROCESSING COMPANY

MOUNT HOLLY N. CAROLINA



Special Representative: E. F. REDDING, MOUNT HOLLY, N. C.

CHICAGO, ILLINOIS
Mr. E. W. Wood
222 West Adams St.

CHATTANOOGA, TENN.
Mr. Tom Moore
735 Chestnut Street

HIGH POINT, N. C.
Mr. E. J. Holbrook

NEW YORK, N. Y.
Schoolfield & Co., Inc.
40 Worth Street

PHILADELPHIA, PA.
Roland Swallow
Schoolfield & Company
3701 N. Broad St.

CHARLOTTE, N. C.
Cosby & Thomas

1942 LIGHTING REPORT TO PRODUCTION-MEN

Answers to 17 questions most frequently asked about FLUORESCENT LIGHTING EQUIPMENT

Never before have we been asked so many questions by Production-Men, and these three facts would seem to explain their growing interest in fluorescent lighting equipment.

1. **The many exaggerated claims being made about fluorescent lighting and equipment in general.**
2. **The greater cost of fluorescent over filament equipment, making lighting today a major purchase.**
3. **The extreme importance of higher illumination in the war effort.**

It seems timely, therefore, to answer the more frequent questions in this REPORT TO PRODUCTION-MEN.

Is there any one best kind of industrial lighting? Yes, continuous-row fluorescent lighting is proclaimed "the new standard for industry" by lighting authorities.

Is there any one best continuous-row lighting system? We think MILLER 50 FOOT CANDLER, 100 FOOT CANDLER and MILLER TROFFERS are measurably superior to any other equipment on the market today. The MILLER System was the *original* continuous-row lighting system.

When were the first MILLER installations made? MILLER Fluorescent Systems have been in use since January, 1940.

How many installations have been made? Over 135 miles of MILLER Fluorescent Lighting Systems are in use.

In what kinds of plants? In armories, arsenals, airplane and parts plants, in the factories of all types of *offense* suppliers.

What kind of deliveries are you making? Deliveries are moving smoothly, fast and ahead of building schedules *as a rule*. And no major installation goes in without a MILLER engineer on the job.

What about priorities? We like yourself are dependent on material allocation. We are cooperating 100 percent with the war program.

Are you biased in favor of fluorescent? No. MILLER offers a complete line of fluorescent *and* filament lighting equipment for every commercial and industrial need.

What is the significance of the names 50 FOOT CANDLER and 100 FOOT CANDLER? The 50 FOOT CANDLER, using 40-watt Mazda F lamps, is designed to provide a minimum of 50 foot candles of illumination, and the 100 FOOT CANDLER, using 100-watt Mazda F lamps, a minimum of 100 foot candles when mounted and spaced on centers prevailing in the average plant.

Are MILLER Lighting Systems priced low, medium or high? A direct comparison of "fixture cost" is not possible because these units are more than a "fixture" for they provide a complete lighting system, wireway channels, auxiliaries, wire and reflectors, making possible savings of from 30 to 50% in the *cost of installation.*

Are 50 FOOT CANDLERS and 100 FOOT CANDLERS suitable for lighting offices, drafting rooms, and similar locations? They are, but MILLER TROFFERS, *Continuous Recessed* Fluorescent Lighting System, are recommended for use with acoustical or other hung ceiling constructions. More than 25 miles of MILLER TROFFERS are in service today.

Any "bugs" to be eliminated from these 3 lighting systems? No. They carry MILLER's guarantee, and have been *proven* by more than two years' intensive service in manufacturing and war plants of all kinds.

What do you mean "Guaranteed"? Each fixture comprising either of these lighting systems carries a written guarantee backed by The Miller Company's 98 years of specialization in lighting equipment.

Have you any actual figures on increased production with MILLER 50 FOOT CANDLERS? In one group of textile mills, for example, where accurate records were kept, MILLER 50 FOOT CANDLERS are credited with (1) Increase in weaving efficiency from 81% to 84%, with a decrease of 22% in mending costs; (2) Increase of weaving efficiency from 83% to 87.7% with a decrease of 25% in mending costs.

What about maintenance? Simple in the extreme. The porcelain-enameled reflectors are easy to remove and clean.

What of the future? Should you have to rearrange or do entirely different work in your plant, you can do so with the MILLER Lighting System. Should you want greater illumination, you can get up to 45% more without adding new fixtures.

How do we go about getting our plant lighted with a MILLER Continuous Fluorescent Lighting System? Wire The Miller Company direct, at Meriden, Conn., or phone our nearest representative.

MILLER

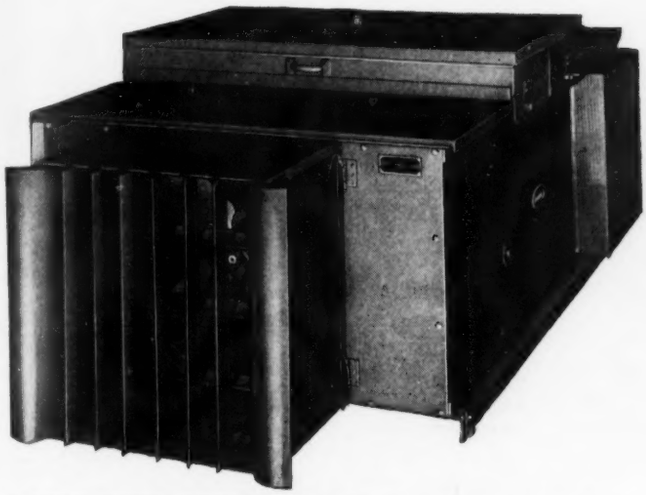
50 FOOT CANDLER
100 FOOT CANDLER
MILLER TROFFERS

***Continuous* Wireway Fluorescent Lighting Systems**

THE MILLER COMPANY
MERIDEN, CONN.
Pioneers in Good Lighting Since 1844

• MILLER offers a complete line of filament and fluorescent lighting equipment

ANNOUNCING A NEW CARRIER HUMIDIFIER



THE NEW CARRIER HUMIDIFIER humidifies, cools, or heats, cleans and distributes air in a single unit. Its power requirements are low — assuring economical operation. It is designed for ceiling suspension — thus saving valuable floor space. But its great new advantage is its unusual flexibility.

Designed Especially for Today's Speeded-up Textile Mill Operations

The new Carrier Humidifier for low-cost humidification helps to meet the rigid specifications and rapidly changing production requirements of today.

Built sectionally, the new Carrier Humidifier is easily handled, installed, and moved as needed to meet changes in mill machinery—or production schedules. Thanks to its compact and efficient design, increased load or mill expansion problems are easily met by relocating the Carrier Humidifiers. No ducts are required.

Adaptable to Changes in Mill Machinery Layouts Required in War Production

The use of air conditioning and humidification is increasingly important in the all out effort for Victory. But every problem has special, individual requirements. Carrier recommendations and equipment are based on *specialized* engineering experience in the textile field. Carrier's early developments revolutionized humidifying in textile mills.

Whether you plan to air condition or humidify a single floor or an entire mill, call on Carrier for sound advice. No obligation. Carrier Corporation, Syracuse, New York.

OPERATING ADVANTAGES

1. *Floor Space Saved* by ceiling suspended unit
2. *Undisturbed Production* during installation of sectionalized humidifier
3. *Low Cost Operation* assured by new highly absorbent and relatively open wetting surfaces
4. *Maximum Cooling Effect* and regularity of conditions assured by simple pneumatic controls

The Navy "E", one of the U. S. Navy's most coveted honors, was awarded to Carrier Corporation for excellence in war production.

Carrier
Air Conditioning

CARRIER CORPORATION Desk D44
"Weather Makers to the World"
Syracuse, N. Y.

Please send me without obligation, information on the new Carrier Humidifier.

Name.....

Address.....

City.....

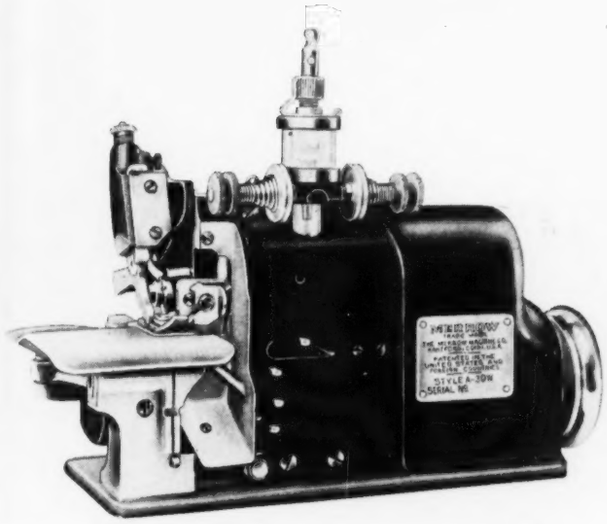
THESE ARE THE FABRICS
UNCLE SAM NEEDS
Airplane cloth
Balloon cloth
Balloon cloth
Broadcloth
Bunting
Canvas, 6-oz.
Canvas, padding
Chambray
Cloth, cotton
Cloth
Cloth, 6¼-oz.
Cloth, 16-oz.
Cloth, jungle
Damask, table
Denim, unshrunk
Drill, 7-oz.
Drill, 7½-oz.
Drill, 7½-oz.
Drill, 7½-oz.
Drill, 7¼-oz.
Drill, 4½-oz.
Drill, 7.7-oz.
Duck
Duck
Gauze, plain
Italian, 4.8-oz.
Jean, 4.8-oz.
Leno, 1.5 oz.
Lining, 4.5-oz.
Muslin
Nainsook
Osnaburg
Percale
Pillow tubing
Poplin, 4-oz.
Poplin, 5-oz.
Print Cloth
Print Cloth
Sheeting, 4-oz.
Sheeting, Narrow
Sheeting, wide
Sheeting, wide
Shirting
Silesia, 4.4-oz.
Silesia, 4½-oz.
Silesia, 5-oz.
Suiting, 7.7-oz.
Twill, h'bone
Twill, h'bone
Twill, 4.4-oz.
Twill, 5-oz.
Twill, 6-oz.
Twill, 8.2-oz.
Twill, uniform
Twill, uniform
Twill, uniform
Twill, uniform
Twill, 5-oz.
Towels, bath
Towels, hu
Towels, hu
36-90 in.
5 types,
4 types,
130x64
18&36 in.
24 in.
5.8-10.6
36 in.
Types
40&41
36 in.
36 in.
2 types
Types
Classes
35 in.
36 in.
39 in.
Type
bleac
Type
bleac
Type
28½
6-15
36
Blanket, 1½-lb.
Blanket, 3¾-lb.
Blanket, 4-lb.
Bunting
Cloth, uniform
Covert, 12½-oz.
Doeskin, 26-oz.
Elastique, 18-oz.
Elastique, 18-oz.
Elastique, 24-oz.
Facing, 16-oz.
Flannel, 8¼-oz.
Flannel, 10½-oz.
Flannel, 11-oz.
Flannel, 13-oz.
Kersey, 16-oz.
Kersey, 22-oz.
Kersey, 30-oz.
Lining, 12-oz.
Lining, 30-oz.
Melton, 16-oz.
Melton, 32-oz.
Serge, 14-17 oz.
Serge, 10½-oz.
Serge, 18-oz.
Shirting, 10½-oz.
Suiting, 20-oz.
56 in., 80x84,
weave
72 in., 22-2
Types
4 ty
wo
15
TEXTILE
Anklets
Bobbinet
Cap
Cap
Drawers
Drawers, cotton
Drawers
Gloves
Gloves, woolen
Jerseys
Lining, 22½-oz.
Lining, 26-oz.
Mufflers, 8½-oz.
Socks, cotton
Socks, cotton
Socks, pt. wo
Socks, worste
Socks, pt. wool
But first — they must be processed by
CARD CLOTHING
Processed to get the best yarn with the least waste from your cards. ★ Tuffer Card Clothing made by our patented Tufferizing process gives you this extra help to better yarn and greater production. ★ Every possible effort is being made to keep you supplied with vital cardroom products in time. ★ We at the home of "Tuffer" are operating at full capacity on Defense production to insure Victory.
HOWARD BROS. MFG. CO.
WORCESTER, MASS.
Southern Plants: Atlanta, Ga., Gastonia, N. C.
Branch Offices: Philadelphia, Pa., Dallas, Texas
Canadian Agents: Colwool Accessories, Ltd., Toronto 2
Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye & Regular Wire Heddles
STEP UP PRODUCTION WITH
TUFFER
CARD CLOTHING

TRADE MARK

MERROW

REG. U. S. PAT. OFF. AND IN FOREIGN COUNTRIES

HIGH SPEED



OVEREDGING
OVERSEAMING
AND
HEMMING MACHINES

Produce Federal Specification Stitch Types 501, 502, 503 504 and 505

Merrow Class A Machines, illustrated, are the result of several generations of specialized effort. These machines have made possible quality production, high speed, and low operating costs to a degree greater than ever before. They are easy to handle, simple to adjust, sturdy in design, accurate in workmanship and readily adapted to many kinds of work. Let us or our distributor nearest you demonstrate the work of these machines on samples of your own fabric.

WAR WORK DEMANDS

Quality Results
High Production
Convenient Handling
Minimum Time-Out for Adjustment or Repair
Low Upkeep Costs

Obtain Maximum Quality Production by Using a Machine Suitably Arranged for Your Work

200 VARIATIONS FOR 200 PURPOSES

Our Distributors or Our Direct Representatives Are On Call to Advise You Suitable Machine Arrangements for Various War Work and Proper Care and Operation of Machine.

ESTABLISHED 1838 INCORPORATED 1894

THE MERROW MACHINE COMPANY

STARTING OUR SECOND CENTURY

2803 LAUREL STREET HARTFORD, CONN., U. S. A.

L. F. Dommerich & Company

Executive and General Offices

271 MADISON AVENUE
NEW YORK, N. Y.

Telephone: AShland 4-8650

FACTORS

For Manufacturers and Merchants

Inquiries as to our services solicited

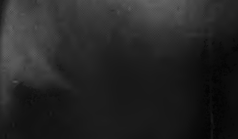
•

ESTABLISHED 1840

Insignia (twice size
of Textile Machine
nding production of
naterials.

Sing a song of loveliness . . . Every woman knows that the song of stocking loveliness is inspired by the quality of the fabric. Every hosiery manufacturer knows that regardless of the fibre used it takes good needles to produce a quality fabric. Keep your knitting machines young and effective with TMW Needles . . . *And remember: Regular Reneedling Pays! Let us put your needle bars in shape for faster, more accurate, more profitable knitting.*

TEXTILE MACHINE WORKS • READING, PA.



U. S. Navy Ordnance Flag and "E" Pennant awarded Textile Machine Works for outstanding production of Naval Ordnance materials.

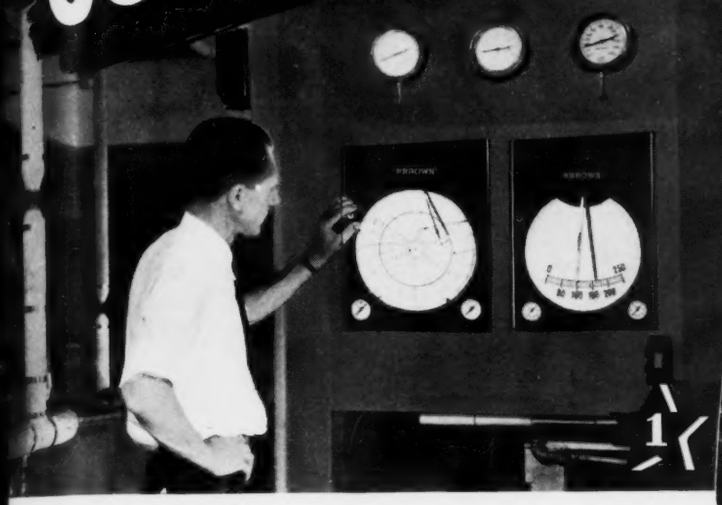
"Hit from where your hand is."

BOB FITZSIMMONS

Until the Victory is Won! . . . The makers of Reading Full-Fashioned Knitting Machines are now 100 per cent on Ordnance production. We *cannot* give you new machines — but we *will* do the next best thing: Our engineers will do their utmost to help you keep your present equipment at the point of highest efficiency. *Let us tell you about our complete reconditioning service and what it means in terms of better fabrics and bigger profits.*

TEXTILE MACHINE WORKS • READING PA

ROWN CONTROLLERS SPEED UP PRODUCTION



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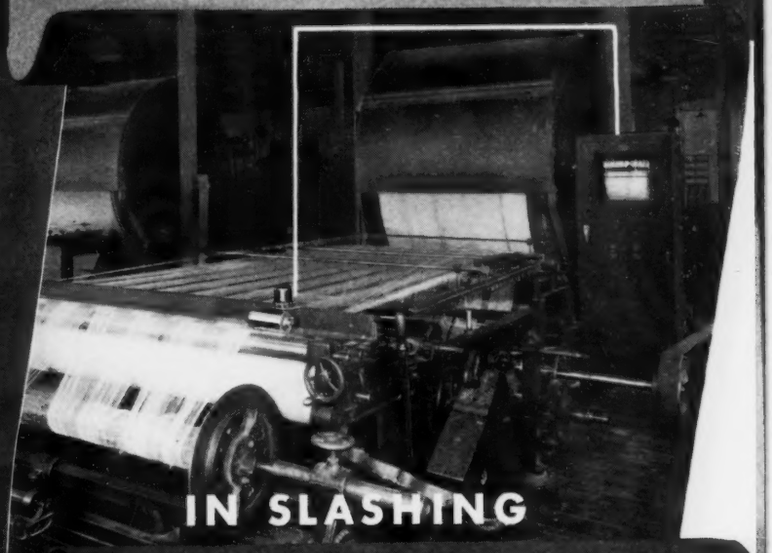


IN SLASHING

THE pace set by the "all out" production program demands the elimination of rejects, waste and loss of time. Every process in the manufacture of textiles must be controlled to insure maximum production at lowest cost.

1. In *SLASHING*—The Brown *Moist-o-Graph* Slasher Speed Control System makes this possible by providing immediate data on moisture content in yarn in the form of permanent charted records. Regain can be measured and controlled to maintain slasher production at highest yardage per minute that slasher drying capacity can produce, for any particular weight of set.

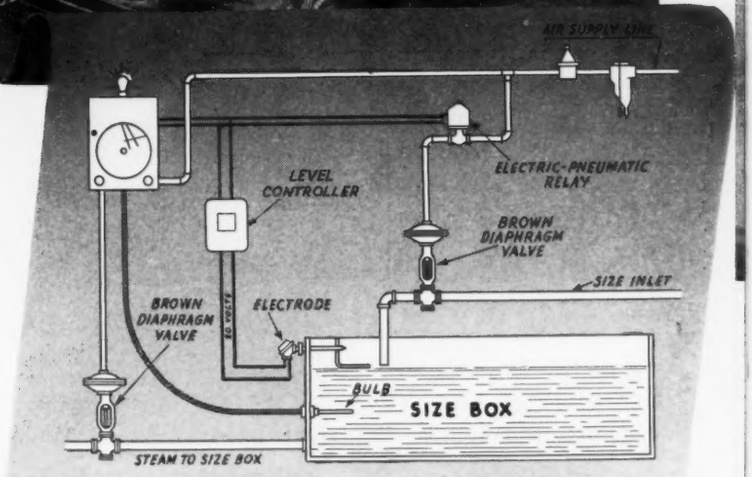
2. IN *SIZING*—Brown Thermometer Controllers govern size box temperature to give the yarn the necessary internal strength and elasticity which overcomes strains in weaving.

Brown Level Controllers maintain size at the "right level" to insure correct saturation and uniform coating of the fibres. Proven results show that where these instruments are installed, troubles caused by improper size viscosity are eliminated.

3. IN *SIZE COOKING*—Brown Time-Temperature Controllers assure even cooking, prevent lumping and "boiling over" and free the operator for other duties during the size cooking process.

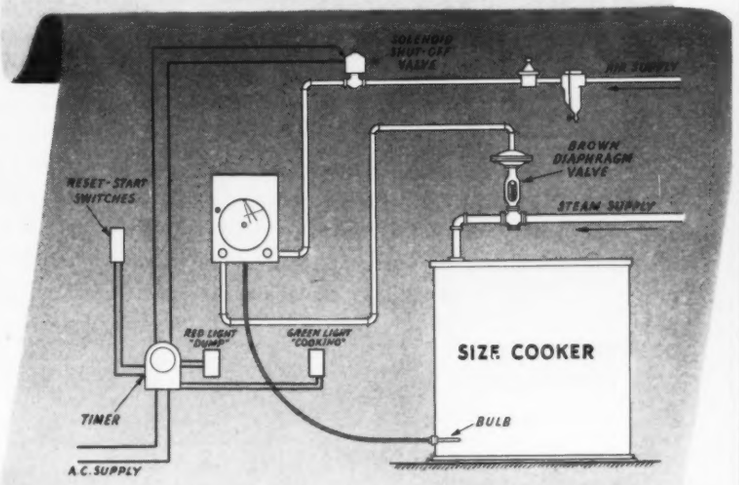
When the kettle is dumped and refilled, the operator merely pushes an external button which automatically resets the control system for another cook.

Brown Controllers for textile processes are simple, inexpensive and easy to install. To get the complete story, write for Catalog No. 9304.



2

IN SIZING



3

IN SIZE COOKING

For Temperatures . . . . . Pressures . . . . . Flows . . . . . Liquid Levels

BROWN INSTRUMENTS

ELECTRIC · AIR OPERATED

THE BROWN INSTRUMENT COMPANY, 4509 WAYNE AVENUE, PHILADELPHIA, PENNSYLVANIA
DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR CO.
MINNEAPOLIS, MINNESOTA, AND 119 PETER STREET, TORONTO, CANADA
Wadsworth Road, Perivale, Middlesex, England: Nybrokajen 7, Stockholm, Sweden

KEEP 'EM RUNNING WITH GENUINE H&B REPAIR PARTS

THE MAINTENANCE and repair of existing equipment in every industry has suddenly become one of the most vital factors in the war production program. This is particularly true of textiles as the requirements of our armed forces call for hundreds of millions of yards of fabric suitable for military purposes.

To meet this call for all-out production it is essential that every machine which is suitable for producing goods required by the military, naval and air forces should be kept in perfect running order. Efficient operation can only be expected when repair parts are used that are accurately machined with special tools to give years of service at the highest productive output.

To the users of our machinery we say—"Keep 'em running with genuine H & B repair parts". This service we believe to be of paramount importance and propose to maintain same to the utmost of our resources.

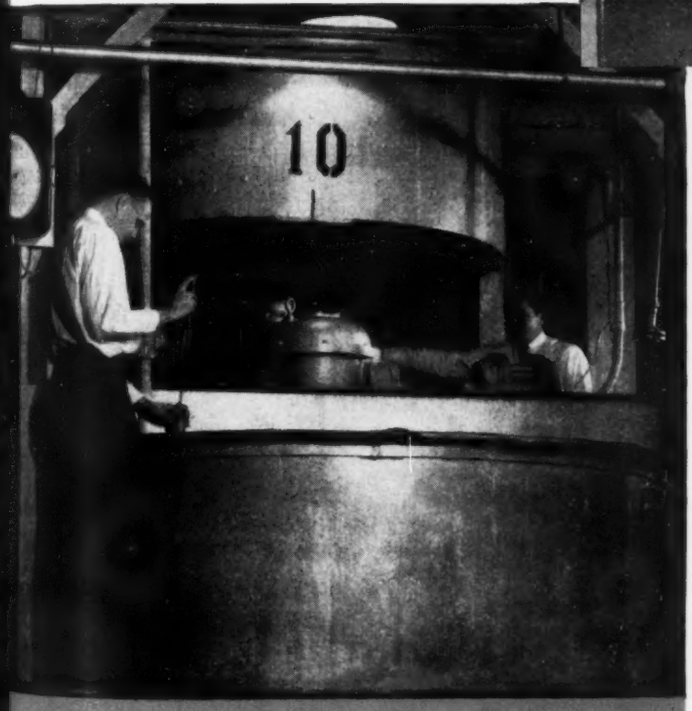
While a limited amount of new textile machinery will be available to mills operating wholly or nearly so on government contracts through the issuance of priority certificates, deliveries will depend to a great extent upon our being able to promptly obtain iron, steel and other materials necessary for its fabrication.

In addition to our regular products we have been engaged for the past year in the manufacture of munitions and every effort is being made to expand our operations to meet the needs of the hour.

H & B AMERICAN MACHINE CO.
Textile Mill Machinery
PLANT AT PAWTUCKET, R. I.

Boston Office, 161 Devonshire St.
Charlotte Office, 1201-3 Johnston Bldg.
Atlanta Office, 815 Citizens & Southern National Bank Bldg.
Export Dept., United States Machinery Co., 115 Broad St., New York, U. S. A.

The practical advantages of LARGE-SCALE PRODUCTION to users of CYANAMID QUALITY CHEMICALS in the textile industry



(above) One of Cyanamid's modern large-capacity units for the production of textile chemicals. Large-scale production means greatest possible uniformity in chemical supply.

(left) A similar unit in another Cyanamid plant. Each step in Cyanamid's volume production methods is planned and carried out to deliver highest quality as well.

REGARDLESS of whether the volume required is moderate or in carload lots, chemicals for the textile manufacturing processes should be of a consistently reliable, uniform quality at all times.

The source of supply of textile chemicals . . . the sulphonated oils, penetrants, sizing compounds, wetting agents and other specialties . . . therefore becomes a primary consideration to the manufacturer in establishing economically dependable processing results.

Cyanamid recognizes this vital part played by chemicals throughout the textile industry. Cyanamid is also aware that the supplies required by the textile industry can best be provided by high-standard volume production, insuring the barrel by barrel uniformity made possible by large batch manufacture. As a result, Cyanamid has set up modern large-scale facilities adjacent to the important centers of textile manufacture.

Cyanamid today is able to assure textile manufacturers that their requirements, both large and small, will be accurately and quickly filled with chemicals of a consistently high quality.

Cyanamid is also prepared to serve textile manufacturers on problems relating to the proper selection of chemicals to meet changing specifications in production . . . a valuable extra service without charge or obligation that is backed by extensive research and practical field experience.

SULPHONATED OILS; PENETRANTS; SOFTENERS; FINISHES; SIZING COMPOUNDS; DECERESOL* WETTING AGENTS

*Reg. U. S. Pat. Off.

AMERICAN CYANAMID & CHEMICAL CORPORATION

A UNIT OF AMERICAN CYANAMID COMPANY
30 ROCKEFELLER PLAZA · NEW YORK, N. Y.

DISTRICT OFFICES: 89 Broad Street, Boston, Mass.; 401 N. Broad Street, Philadelphia, Pa.; Russell & Bayard Streets, Baltimore, Md.; 3333 Wilkinson Boulevard, Charlotte, N. C.; 850 Leader Building, Cleveland, Ohio; 20 N. Wacker Drive, Chicago, Ill.; Miller Road, Kalamazoo, Mich.; 931 Fisher Building, Detroit, Mich.; 900 Shell Building, St. Louis, Mo.; Azusa, Calif.

Another advertisement telling how different American industries are speeding up wartime production

We've got to stretch it

TO WIN THE WAR

Taylor Instruments are helping fill America's wartime rubber needs

AMERICA needs rubber enough to go round. We've got to stretch our national stock of rubber, because the war has already cut us off from 97% of our normal rubber supply. We need rubber to fight this modern war.

To make sure we get it, America's great rubber industry is relying on Taylor temperature and pressure control instruments to do the vast job faster and better. Taylor Instruments insure precision exactness—automatically safeguard complicated operations—speed up the whole involved process. They are vital necessities to our wartime rubber program.

Here's some war work Taylor Instruments are doing. They help produce:

BETTER NATURAL RUBBER . . .

Within the next few months, production of U. S. Signal Corps assault wire will be stepped up 300%. This latex-covered copper wire, so fine that one man can carry ¾ of a mile of it, is used to lay battlefront communication lines. It must be tough, sturdy, micrometer-exact in size, 100% reliable. It is cured by specially designed equipment completely controlled by Taylor Instruments.

Bomber tires, like the 8-foot, 1000-pound giants on the 82-ton Douglas B-19 planes, have to be cured precisely right to stand the terrific impact of landing. They are now out of the experimental stage, in full production. Taylor coordinated control systems govern the exact curing process that gives them strength.

Gas mask production has jumped to millions of masks per year. The face-covering part, molded in one piece, can now be produced on a 24-hour schedule with the help of Taylor Flex-O-Timers to control the sequence of operations.

Rubber-lined, leak-proof gas tanks for planes, scarcely known a few months ago, are now produced by thousands. Taylor Instruments are steadily being added to help increase this mounting output.

BETTER SYNTHETIC RUBBER . . .

A large part of all synthetic rubber production is controlled by Taylor Instruments. Fact is, synthetic rubber could not be produced without the close control insured by such instruments. The first synthetic "pilot plants" were Taylor-equipped—the tremendous commercial plants use Taylor Instruments. They will help boost synthetic rubber production from 40,000 tons last year to the 600,000-ton yearly total America must achieve.

BETTER "RECLAIM" RUBBER . . .

The production of "reclaim" rubber has almost doubled—skyrocketing from 200,000 to 350,000 tons annually in two years. It will keep on rising, because Taylor Instruments help assure the exact time and temperature schedules of "reclaim" de-vulcanizing processes.

With the help of Taylor Instruments, *every* American industry can be geared to the "go" that will win the war. Taylor Instruments will help *you* produce more, produce better, save time, and save manpower. All through industry, Taylor Instruments have given faithful service for years. Depend on them in these war times. Depend on the "know how" of Taylor engineers to show you how to squeeze the last vital ounce of efficiency from your existing production equipment. Your country needs *producers*—that's why *you* need Taylor Instruments. Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. Makers of the famous "Not 1 but 5" Fulscope Controllers.

★ **KEEP ON BUYING U. S. DEFENSE BONDS AND STAMPS** ★

Taylor

Indicating Recording Controlling

TEMPERATURE, PRESSURE, FLOW *and* LEVEL INSTRUMENTS

From Earth to Air

• *Manhattan Rotary Hose, Belts and Brake Lining drilling well in Texas oil field.*

• *Manhattan Paranite Oil Hose loading tanker at Eastern Port.*

MANHATTAN RUBBER speeds the products of *Petroleum*

Deep into the earth sometimes to three pressure-ridden miles—go the drills that search for the pools of "liquid gold" needed for propulsion and lubrication—twin servants of Defense.

Drilling, pumping, refining, loading—all are functions in which MANHATTAN Rubber collaborates for increased production.

At the well, the use of MANHATTAN Rubber begins—Rotary Hose, Pump Suction Hose, Flat and V-Belts, Draw-Works Brake Lining, Rubber Covered Pistons, and many other necessary items—all of Rubber, but each compounded of natural rubber or Synthetic materials to fit specific requirements.

At the refinery, MANHATTAN speeds the output with special types of rubber hose for filling barrels, tank cars, tank trucks, tankers, and bunkers—and protects with fire hose.

In the air, MANHATTAN keeps them flying seven miles up in the sub-stratosphere with engineered rubber hose that withstands the extremes of intense engine heat and bitter cold—for fuel, oil, instruments and controls—and then stops them with brake lining.

Versatile Rubber, in many forms and combinations, records the long succession of MANHATTAN developments and applications to increase the output and the effective use of essential petroleum products. Some of the more vital uses were made possible by MANHATTAN'S being the first to adapt "synthetic rubber" commercially.

PRODUCTS for the PETROLEUM INDUSTRY

Flat Belting
V-Belts
Rotary Hose
Pump Intake Hose
Oil Loading Hose
Refinery Hose
Fueling Hose
Tank Car and Truck Hose
Fire Hose
Stuffing Box Rings
Gaskets and Packings
Rubber Covered Pistons
Pipe Joint Gaskets
Brake Lining
Molded Goods
Asbestos Products
Abrasive Wheels
Rubber Lined Tanks

E MANHATTAN RUBBER MANUFACTURING DIVISION
of RAYBESTOS-MANHATTAN, INC.
CUTIVE OFFICES and FACTORIES • • • PASSAIC, NEW JERSEY

KEEP AHEAD WITH MANHATTAN

What you save today may save your business tomorrow...

Two booklets that give you a wealth of practical packaging information to help you save time, save space, save dollars.

WHILE H & D's mills and factories push production at top speed to meet ever-increasing demands of American business, the scope of Hinde & Dauch Package Laboratory services is extended to help manufacturers attain more efficient packing and storing methods as well as more efficient packaging.

Under this program, two sections of "The H & D Little Packaging Library" are now ready for distribution. These booklets are full of practical suggestions on how to simplify your shipping, packing and storing, thus conserving time, space and material.

There are a number of tricks to packing and sealing. "How To Seal" tells you which way is best for your products.

There are a number of tricks to stacking and loading. "How To Stack & Load" gives you many worthwhile suggestions on how to reduce damage, how to save time and money.

Just as the services of H & D Package Engineers are available without obligation—the booklets are yours for the asking. Very likely you will want extra copies for key men in those departments where the information they contain can profitably be employed. Write for copies, they will be sent to you promptly.

SAVE AND SELL WASTE PAPER

HINDE & DAUCH *Authority on Packaging*

4230 DECATUR STREET • SANDUSKY, O.

FACTORIES IN BALTIMORE • BOSTON • BUFFALO • CHICAGO • CLEVELAND • DETROIT • GLOUCESTER, N. J.
HOBOKEN • KANSAS CITY • LENOIR, N.C. • MONTREAL • MUNCIE • RICHMOND • ST. LOUIS • SANDUSKY, OHIO • TORONTO

EASY ON THE OIL, MISTER!

In your car - - - in your spindles, - wherever oil is used,—DON'T WASTE IT!

You may have to check the oil in your *crankcase* every week, but with FLETCHER OILWELL SPINDLES, you can "fill 'em up and forget 'em!" Under normal operating conditions, the patented oil reservoir holds a supply of *permanently clean* oil sufficient for a year's constant operation.

In addition to the saving in oil, these spindles will give you the advantages of absolute cleanliness, uniform twist, practical elimination of oiling shutdowns, and negligible maintenance costs.

If your spindles will need replacing soon, *now* is the time to "look into the OILWELL."

FLETCHER WORKS

Glenwood Ave. and Second St., Philadelphia, Pa.

FLETCHER "Oilwell" SPINDLE

"We oil about once a year . . . Never have a sticky spindle, dirty oil in the bolster, oil on the yarn. Glad to recommend it . . . as the best spindle I've ever seen or used" — a typical comment from a typical "Oilwell" user!

These 2 Words MAKE MOTOR-DRIVE *More than* POWER

RELIANCE ELECTRIC AND ENGINEERING COMPANY

Reliance men skilled in Application Engineering start daily on new missions essential to making our great war machine produce more than we ever dreamed was possible. They are answering calls where *motor-drive must be more than power.* These are typical . . . A new tinning process to make our reduced tin supply go three times as far . . . A drive to simplify machine design and insure a top-notch production pace on a hurry-up lot of hundreds of boring mills for producing tank turrets . . . Motors to speed up production of shell-turning lathes . . . A motor-drive for an automatic towing machine that will aid sea-going tugs to handle tows with less strain and reduce chances of losing the tow . . . A hoisting motor for bringing seaplanes to a warship's deck safely in rough seas...These and many more like them are engineering jobs done in cooperation with men who *start* their design with the question, *"What can we get the motor to do besides supply power?"* Such as

Motor-drive provides within itself a means of:

SPEED CONTROL	REVERSING
BRAKING	REMOTE CONTROL
TANDEM OPERATION	CONTROLLED ACCELERATION
TENSION CONTROL	SAFETY

SLOW SPEEDS FOR INCHING, THREADING, INSPECTION

Applying them to boost production and improve quality is APPLICATION ENGINEERING. That's our business.

Fully-enclosed, Fan-cooled D-c. Reliance Motor

Fully-enclosed, Fan-cooled A-c. Reliance Motor

RELIANCE ELECTRIC & ENGINEERING COMPANY
1088 IVANHOE ROAD • CLEVELAND, OHIO
BIRMINGHAM • BOSTON • BUFFALO • CHICAGO • CINCINNATI
DETROIT • GREENVILLE, S.C. • HOUSTON, TEX. • LOS ANGELES
MINNEAPOLIS • NEW YORK • PHILADELPHIA • PITTSBURGH
PORTLAND, OREGON • ST. LOUIS • SAN FRANCISCO
SYRACUSE, N.Y. • AND OTHER PRINCIPAL CITIES

RELIANCE A-C D-C MOTOR

TAKE FRICTION OUT OF YOUR PLANT

SAVE MACHINES

COTTON MILL SUPERINTENDENT: "Ball Bearing LUBRIPLATE has saved us much money in bearing replacements. Not only has LUBRIPLATE corrected our bearing wear, but outlasts many times the grease previously used."

SAVE TIME

MASTER MECHANIC OF WOOLEN MILL: "Since using LUBRIPLATE No. 210, we have increased speed of our Speeders 40 percent over what we could do with lubricant previously used. We are also using Ball Bearing LUBRIPLATE for general applications."

SAVE COST

PURCHASING AGENT OF WOOLEN MILL: "As evidenced by our repeat orders for LUBRIPLATE during the past four years, we are obtaining excellent results, particularly from a standpoint of reduced costs both as regards lubrication and machine maintenance."

SAVE WORRY

SUPERINTENDENT OF CARDING: "Since starting the use of No. 100 in my comb boxes two years ago, no repairs have been needed and they are running cool and chatterless. On plain bearings opposite comb boxes, we now apply No. 100 every three days, where before we had to lubricate every day."

7 FACTS ABOUT LUBRIPLATE

1. *LUBRIPLATE produces an ultra-smooth, wear-resisting bearing surface.* **2.** *LUBRIPLATE reduces friction, thus lowering maintenance and power costs.* **3.** *LUBRIPLATE resists rust, corrosion and pitting.* **4.** *Most LUBRIPLATE products are white. LUBRIPLATE assures clean lubrication.* **5.** *LUBRIPLATE outlasts ordinary lubricants many times.* **6.** *LUBRIPLATE is economical — a little goes a long way.* **7.** *LUBRIPLATE is available in fluid and grease types for every need.*

DON'T let friction get in and sabotage your precious production machines that are so badly needed these days. Scored, damaged or burned-out bearings, costly repairs, idle machinery waiting for repair parts must have no part in today's vital need of more and more production.

Proper lubrication will keep this vandal "friction" out of your plant . . . lubrication that provides a tough load-bearing, long lasting film between all shafts and bearings, gears, chains and other contacting machine parts. LUBRIPLATE lubricants will do it. LUBRIPLATE is in a class by itself. It possesses properties not found in conventional lubricants.

Don't take our word as to the efficiency of LUBRIPLATE. Read this letter from one of the best known manufacturers of metal products in this country:

> "As you know, our machinery is of the high speed type, and with the constant increasing of the speed of these machines, lubrication has presented itself to be one of our biggest problems to solve before we can increase speed to a much greater extent. The results of our experience with LUBRIPLATE have been very gratifying as it has caused our machines to run much cooler, and the fact that LUBRIPLATE stays put and lasts longer, it has minimized our lubricating costs. LUBRIPLATE has done all you have claimed it to do."

With such conclusive evidence, don't you think it's your patriotic duty to investigate LUBRIPLATE? Our staff of engineers and dealers everywhere are at your service. Write, phone or wire today.

LUBRIPLATE DIVISION
FISKE BROTHERS REFINING COMPANY
SINCE 1870
NEWARK, N. J. TOLEDO, O.

DEALERS FROM COAST TO COAST

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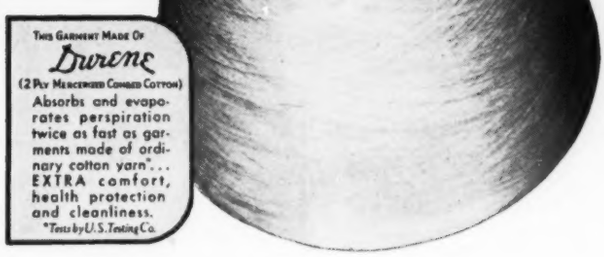
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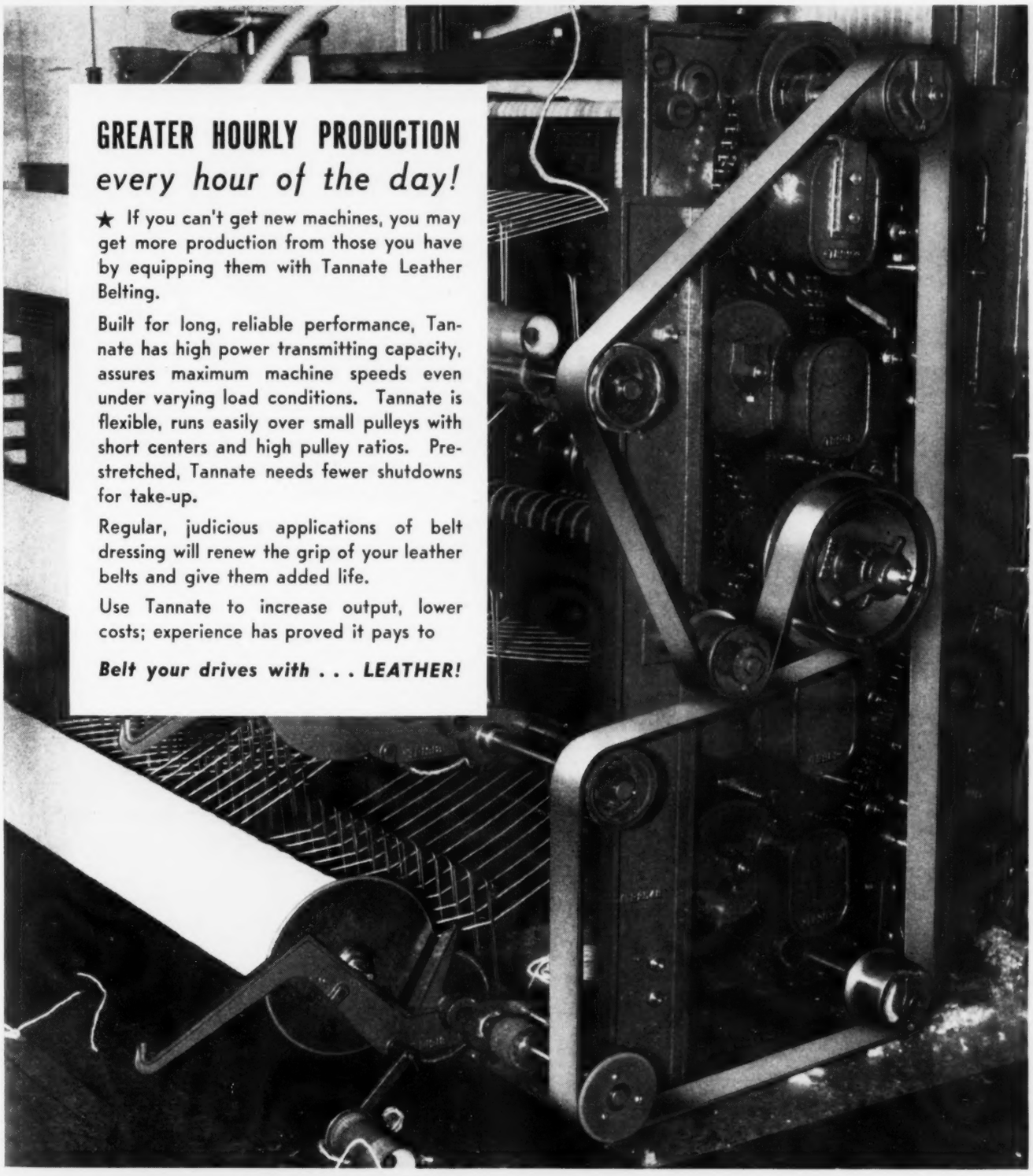
IN THE NEXT

BREEDING SEED for better cotton is an activity of Government agencies and private individuals which benefits the textile industry. In the next issue of TEXTILE WORLD will appear a summary of the various steps which are being taken and the resulting improved characteristics of the cotton from the standpoint of the user of the staple in a textile mill.

In the May issue also will appear an article on up-to-date practices in mill lighting, featuring recent developments in fluorescent lamps and fixtures, and illustrated with numerous illustrations of typical installations.

A further installment of Max Miller's series on knitting rayon and cotton full-fashioned hosiery, started in the current issue, will appear. Tentatively scheduled for May are a timely article on the packaging of textiles under war conditions; a scientific study of reasons for crimp in wool which develops a new theory which may have far-reaching effects in textiles; and an article on mildew-proofing military fabrics for outdoor use.

The regular Washington articles and the addenda to the "Textile War Manual" will bring the reader up-to-date in following the changes in Government needs and orders.



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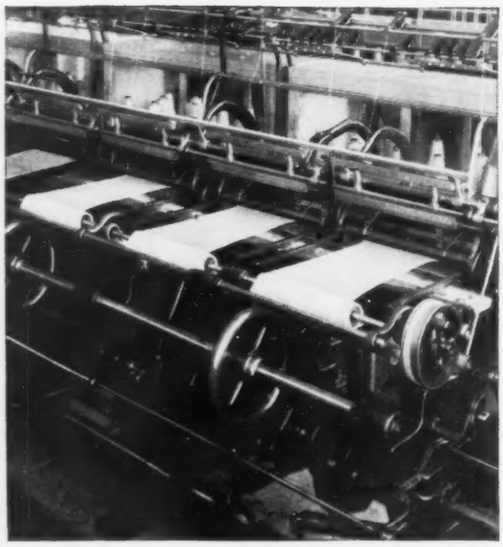

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TEXTILE WORLD

DOUGLAS G. WOOLF, Editor

The Guthrie Incident

THE GUTHRIE INCIDENT, in one sense, is no more important than is Guthrie himself—and that's saying the last word. This is not the first time, in either Government or business, that a man unqualified for the job, and incapable of securing the loyalty of his subordinates or the support of his superiors, has attempted to crawl out of the inevitably resulting mess by casting aspersions upon both groups. Under ordinary circumstances, the answer would be: PERIOD. But these are not ordinary circumstances. This is war. And anything which helps to defeat the war effort must be fought.

The Guthrie incident falls into that category because it threatens to discredit unjustly the war program, and particularly industry's part in it. It furnishes ammunition to be used by certain individuals and groups, for one reason or another, not only against industry and industry's representatives in Washington, but against Donald Nelson and his War Production Board. Either indictment, on the basis of the Guthrie incident, would be grossly unfair.

The men who, at personal sacrifice, have gone to Washington to advise on textile procurement and allied problems, are an outstanding group of patriotic, intelligent men who know their industry and the part it can play in winning the war. The industry itself has furnished a brilliant example of unselfish cooperation toward a single goal. On this writer's desk at the moment are clippings, reporting pooling of experience: a tour of Bigelow-Sanford's blanket mill by representatives of other plants; the Carpet Institute's offer to all carpet mills of technical information on war conversion of looms; exchange of technical data among contractors who are weaving Nylon parachute cloth for the Government; offer of advice by loom manufacturers on just what types of second-hand looms to buy for war work; formation of a plush manufacturers' committee to go to Washington and find out what they could do in the duck line; invitation by the West Point Mfg. Co. to those who wish to make duck, to visit the West Point plant and learn how it's done. These are but samples of an industry-wide trend.

THE WEST POINT item is particularly interesting as a case-study of the inaccuracy of Guthrie's charges. In his testimony before the House subcommittee, he stated:

"It has been my conviction that the mobilized resources of the carpet industry should be put to work on duck manufacture. I directed the consultant on duck to undertake this conversion repeatedly. He is Mr. Proctor, a dollar-a-year man loaned by Wellington, Sears & Co., which is a large duck manufacturer. He strongly dissented, and the order was evaded."

Let us cite our own experience with Wellington Sears. Shortly after it became evident that duck was one of the bottle-necks, this writer wired one of his Southern editors to change his schedule and go to West Point, Ga., and get all he could in the way of helpful information about duck manufacture which we might use in TEXTILE WORLD as a guide to carpet mills and others in breaking into that field. When he got to West Point, Frank Williams, agent of the Wellington Sears mill there, practically turned the plant over to our representative. Since then not only Mr. Williams but many other members of the company's staffs have gone out of their way to help newcomers, through this publication. Similarly, Wellington Sears were among the leaders of the clinic on duck manufacture held at the Philadelphia Textile School.

This is just one instance of the injustice created by Guthrie's action and comment. There are many others. The cooperative attitude of the textile industry has drawn out many testimonials from Government.

THERE IS ONLY ONE encouraging feature of this sordid incident. It is the possibility of utilizing the lessons it teaches, so as to avoid similar impairment of the war effort in the future.

One of these lessons, in this writer's opinion, is the stupidity of the idea of placing in charge of an industry's program in the WPB, a man who knows nothing about that industry. This policy grows out of the naive idea that men who have had a stake in a particular branch of manufacture cannot be trusted to administer its affairs within the Government. Actually, that is the most insulting and most dangerous assumption Washington has made to date.

Second, throughout the testimony there was reflected the maze of red tape which is the real enemy of the war production program. That this was inevitable in an organization that grew up like Topsy, is obvious; that it should be permitted to persist is preposterous. We call attention to the suggestions for stream-lining the WPB that we made in these columns last month. One of our friends in the industry remarked to us that those suggestions were too logical to be accepted by a Govern-

ment bureau. We hope his sarcasm was unwarranted.

Finally, it seems reasonable to expect that a part of the morale drive currently directed toward men in the armed services and men on the production line be diverted toward the Government organizations. The fact that it was possible for a thoroughly lousy personnel situation to exist in one of the branches of WPB, was an "open secret" in the industry, without anything being done about it until the lid was blown off by the pressure of the mess within, is frightening to all industrialists who recognize morale among keymen as one of the fundamentals of good management.

If progress is made on these three fronts, Guthrie will not have grabbed head-lines in vain.

"And So We Compromised"

THERE IS AN OLD CHESTNUT—a masculine chestnut of course—about a husband who said: "My wife wanted a new piano, I wanted a new car, and so we compromised and bought a new piano."

Actually, that is the sort of "compromise" that too large a segment of the American people are willing to accept today. They are eager to "compromise," so long as their own pet interests are not disturbed.

There is nothing new in this manifestation. This writer long since came to one firm conviction about the human race—one of the few philosophical cogitations in which his busy life permits him to indulge. It is pessimistic, but realistic. It is this: Selfishness is the normal attitude of men and women; unselfishness is the unusual attitude. Fortunately, self-interest has been responsible for much of the material progress that man has made. But this material type of progress builds up a protective, a conserving, attitude which prevents the growth of unselfishness. And unselfishness, unusual and rare as it is, is the greatest thrill that mankind can experience. It is the essence of spiritual progress. That this world has made so little spiritual progress over the centuries, as compared with material progress, has been due, this writer believes, to the normal expression of human selfishness.

UNDER ORDINARY CONDITIONS, this negative aspect of self-interest is not immediately fatal. People adjust themselves to a catch-as-catch-can psychology, and the world temporarily moves on.

But in periods of great emergency, it is Obstacle No. 1. It is the basic impediment to cooperative action toward a single goal. Right now, this nation faces an urgent need for such cooperation. Not next year, or next month, or tomorrow, but now. Consequently, the real national problem is this: How can this all-out cooperation be achieved?

Paradoxical though it may seem, the answer lies in the field of self-interest. Not until every man, woman and child of us realize that his or her own self-interest lies in one direction—and one direction only—can we win this war.

Here is the important difference: Hitler can *make* the German people arrive at that conclusion, and he has done so. Hirohito, also, can and has. (We skip Mussolini, because he has already passed on to the status which vultures merit.)

But in this country, thus far, nobody can *make* the American people arrive at any conclusion whatever. Nobody, that is, except the American people themselves.

There are indications right now that America is stirring on its own, in that direction. But there is not time to wait for a leisurely stirring. Hitler and Hirohito will not sit obligingly by while we make up our minds that we are in danger.

WHAT, THEN, IS THE ANSWER? The answer is this: Unless we realize that America is in dire danger, we are doomed. Hitler has conquered Europe. Japan is supreme in the Pacific. The Battle of the Atlantic is, to date, a losing fight for our side. Our own shores, both East and West, are the next objectives of the enemy. Any day, hell may break loose in the peaceful cities of Boston, San Francisco, Norfolk, Seattle, Charleston, Los Angeles, New York, Detroit, Charlotte, New Orleans, Washington, or what have you.

Our sons and our husbands and our fathers and our daughters are being slaughtered on all Continents and on all the seas. Our life-lines are gradually being cut. Our prestige as a nation is now at an all-time low.

Against those facts, what does it matter that we still have more cars, telephones, radio sets, vitamins, gold, per capita than any other nation in the world? Those are sterile values, today. The only real fact that matters to every American—rich or poor, employer or employee, soldier or sailor, teacher or student—is that all this superiority of ours can be washed up in a few years, or even a few months.

Nothing that we have, as individuals, whether it be a plant, or a home, or a job, or a savings-account, or a fortune, or a farm, is worth a tinker's damn to anyone of us unless we can preserve the way of life which has made those things possible.

And when we speak of "way of life," we are not referring to the 40-hour week, or the tax on corporations, or the exemptions on individuals, or the bonuses on crops not produced, or the closed shop, or the open shop, or priorities, or rationing of tires, or girdles, or sugar. All these are trivia.

What we *are* speaking of is a compromise—any compromise—which will bury all those details for the duration, and get every citizen lined up in a battlefront, not merely to defend America, but to beat Hitler and Hirohito into a pulp out of which their ugly faces and dirty souls will be non-distinguishable forever.

Readers—and I hope by now you are no longer gentle readers—compromise everything in the way of your own pet ideas, forget all your internal grievances, get along without everything material—whether it be profits, or golf-balls, or priorities. Stop short of only one compromise: that which might lessen to the least degree your determination to beat Hitler and Hirohito.

How To Make Cotton Duck

Methods and equipment for producing various types needed for military use

WITH DEMAND FOR COTTON DUCKS exceeding the capacity of the regular producers, many textile manufacturers who have had no previous experience in weaving these fabrics are eager to serve during the emergency by changing over their looms to production of duck. In attempting to convert their plants to production of duck, manufacturers of carpets, upholstery, and other fabrics have encountered numerous problems. However, the solution of these problems is being hastened through the hearty cooperation of the loom builders and those companies which specialize in manufacture of ducks in normal times. As a result, information on how to make ducks is being made available to mills wishing to make these fabrics.

Data on production of two types of duck—No. 6 Numbered Duck and Shelter Tent Duck—appeared in the February, 1942, issue of TEXTILE WORLD. On March 18, a forum on manufacture of duck was held in Philadelphia, under the sponsorship of Philadelphia Textile School and the Philadelphia Textile Manufacturers Association. Below are given: (1) a detailed report of the facts brought out at the forum; (2) additional data on looms suitable for weaving duck based on information supplied to TEXTILE WORLD by Crompton & Knowles Loom Works and by Draper Corp.; and (3) hints on solving the problems of conversion.

Forum on Manufacture of Duck

SUBJECTS DISCUSSED at the symposium were: "Yarns for Making Duck," by Charles A. Sweet, of Wellington Sears Co.; "Duck Specifications and Constructions" by B. L. Whittier, of Mt. Vernon Woodbury Mills; "Weaving of Duck" by Frank Williams, of West Point Mfg. Co.; and "Looms for Duck," by Albert Palmer, of Crompton & Knowles Loom Works. M. Earl Heard, dean of Philadelphia Textile School, who arranged the forum, presided. Following is a composite report of the main facts brought out by the various speakers and in the informal discussions.

There are between 25 and 30 specific types of cotton duck. These include wide or numbered duck, sail duck, hose and belt duck, Army duck, flat duck, enameled duck, and ounce ducks. Most ducks purchased by the Government are covered by Federal Specification CCC-D-771-a. (Other types are covered by Federal Specifications CCC-D-741 and CCC-D-761—*Editor*). This specification is not entirely clear as to how weights are figured. First, the minimum weight called for in the specification for each type of duck is about 2½% less than that which should be aimed for by the manufacturer to insure a satisfactory fabric. Second, for most numbered ducks and Army ducks there should be four more warp ends and two more filling picks per inch than are specified as minima. Third, No. 8 duck should have a count of 46 x 28, and 8-oz. Army duck a count of 52 x 40 or 54 x 42.

Yarns employed for Army duck are usually 12s to 14s, 2-ply to 4-ply. Nothing under ⅞-in. middling cotton should be used, and 1 1/16-in. is better. Yarns for 60 x 60 shelter tent duck are usually 20s or 22s 2-ply in both warp and filling, and are made from 1-in. cotton. Other ducks are made from yarns ranging from 6s to 12s, 2-ply to 6-ply. Yarns should meet the well-known Draper standards for strength.

The singles yarns employed in making the plied yarns for both warp and filling are warp spun with a twist multiple of 4½. The plied yarns used for the warps have a twist multiple of 4 to 5; and the plied yarns used for the filling have a twist multiple of 2½ to 3. Singles warp yarns are spun with a twist multiple of 4¾. Plied warp yarns used for making duck are not slashed. When singles yarns are to be employed in the warp, they should be slashed.

Most duck is called for in a hard texture, although the Navy is purchasing some with a medium texture. The same yarn numbers are used for both textures, but for the medium texture the number of picks is reduced and the ply increased. For example, No. 2 duck in hard texture would be made with 22 picks per inch in the filling of 7/5; in medium texture, with 18 picks of 7/6.

To insure good selvages, it is necessary to get a firm warp when it is wound on the loom beam. Cops or bobbins should be so wound that they will not slough off.

In weaving of duck, proper loom settings are important. The characteristic hand or pebble of duck is controlled by raising or lowering the whip roll. For heavy ducks, drag rolls on the back of the loom are necessary. Usually ducks are made with two harnesses. Humidification of the weave room is essential in the South and is advantageous in all parts of the country. It is important not to overload looms; otherwise they will wear out quickly.

Most ducks are required in a water-repellent finish. There is a relation between the repellency of the gray goods and the finished fabrics; and a fabric which meets all specifications in the gray may, if it is improperly woven, fail to pass the test for water-repellency. The weaver should, therefore, check with the finisher on this point. If the water-repellency of the gray fabric is not satisfactory, it can in some instances be remedied by a change in the twist of the filling yarns, or by other means of a similar nature.

Looms for Weaving Cotton Ducks

IN AN EMERGENCY, cotton ducks can be woven on many types of looms which were not originally designed for that purpose. Such looms include certain carpet, upholstery, and plush looms, as well as other models. One of the principal subjects discussed at the forum held at Philadelphia Textile School was the conversion of looms to weaving of duck. At the same time plans for that forum were being formulated, TEXTILE WORLD had enlisted the aid of Crompton & Knowles Loom Works and Draper Corp. in compiling tables indicating what types of looms are suitable for or can be adapted to weaving those types of duck called for in Government specifications. Inasmuch as the points brought out at the Philadelphia Textile School forum and the data compiled by TEXTILE WORLD with the assistance of the loom manufacturers are closely

related, they have been combined in this section of this article.

Types of looms most suitable for weaving various types of duck specified in Federal Specifications CCC-D-771a, CCC-D-741, and CCC-D-761 are shown in Tables I to VI. Also indicated are types of looms which are easily adaptable for weaving the various types of duck and those which are possible to adapt in an emergency. Models of looms listed in the tables as C3, C4, D1, D3, and D4 are made by Crompton & Knowles; those listed as Mod. D, E, K, O, P, R, U, X, and X2 are made by Draper Corp.

A study of those looms which were designed specifically for weaving duck is the best guide for anyone who attempts the conversion of other types of looms. Typical looms of this type described at the Philadelphia Textile School forum are the Crompton & Knowles Models D1, D2, D3, D4, and D5. These looms are much the same except for weight. The lightest, the D1 is used for weaving No. 4 duck 36 in. wide to No. 8 duck 72 in. wide; the D2 is for No. 4 duck 54 in. to No. 6 duck 60 in. wide; the D3 is for No. 0 duck 18 in. wide to No. 8 duck 71 in. wide; the D4 is for No. 12/0 duck 16 in. wide to No. 4 duck 120 in. wide; and the D5 is for the heaviest ducks, such as No. 10 40-in. duck.

In a duck loom there are three important parts which make the weaving of duck possible: (1) the letoff; (2) the harness motion; and (3) the take-up. The accompanying diagram and Table VII indicate in a general way the arrangement of these mechanisms. Two forms of letoffs are in general use. In the lighter looms the warp passes from the beam around a series of back rolls which are positioned to give a drag on the warp. In the heavier looms the arrangement consists of an I beam in combination with other members. The general arrangement of the back rolls and the I beam, if one is employed, is shown on the diagram.

The line of the warp for successful duck weaving should be such that the point of departure from the back roll *D* or *G* is above the cloth level at the front of the loom. The amount by which it is raised varies somewhat, but is within a range of 2 to 6 in.

The harness motion normally used on a duck loom is of the undercam type. Two harness frames are used to produce the plain weave. These are suspended from an overhead roller motion and are operated by an underneath cam harness motion. This motion consists of two sets of cams and two sets of treadle levers. Because of the tension on the warp, this mechanism much be substantially designed.

The harness cams which operate the harnesses should be designed so that they will hold the shed open for approximately 180 crankshaft degrees; in other words, one-half a pick. The throw of the cams, of course, depends upon the size of the shuttle and the sweep of the reed in the loom to which the harness motion is to be applied.

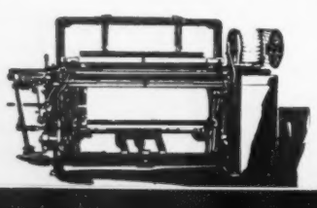
The timing of the harness motion is important. The harnesses should be made to cross when the reed is approximately 2 in. from front center with the lay coming forward. This timing enables

Table I. Looms for numbered duck

Type of Duck		*Types of Looms*		
F.S. CCC-D-771-a Numbered Duck		*Most Suitable*	*Easily Adaptable*	*Possible in Emergency*
No. of duck — commercial designation	Standard weight per linear yard 22 in. wide			
Hard texture:	Ounces			
2/0	20	D3		
1/0	19	D3		
1	18	D2, D3		
2	17	D2, D3		
3	16	D2, D3		
4	15	D1, D2		
5	14	D1, D2		
6	13	D1, R(36–44″)		XU(36″)
8	11	D1, R(36–48″)		XU(36″)
10	9	D1, R(36–72″)	XU(36″)	Mod. D, P, XP
12	7	D1, P, XP	R(72″), XU(36″)	O(72″)
Medium texture:				
2/0	20	D3		
1/0	19	D3		
1	18	D2, D3		
2	17	D2, D3		
3	16	D2, D3		
4	15	D1, D2, R(36–42″)		
5	14	D1, D2, R(36–42″)		
6	13	D1, R(64″), XU(32″)		

Table II. Looms for Army and tent duck

Type of Duck			*Types of Looms*		
F.S. CCC-D-771-a Army Duck			*Most Suitable*	*Easily Adaptable*	*Possible in Emergency*
Standard weight per linear yard, 28½ in.	Minimum allowable weight per square yard	Width, unless otherwise specified			
Ounces	Ounces	Inches			
8	9.85	28½	D1, E, X, X2	C3, C4, Mod. D, P, XP	K
10	12.29	28½	D1, Mod. D, P, XP	C3, C4, X, X2	E, K
12	14.77	28½	D1, Mod. D, P, XP	C3, C4	X, X2
15	18.48	28½	D1, Mod. D, P, XP	C3, C4	X2
Dyed Army & Tent Duck					
	7.90	33	D1, X, X2	C3, C4, Mod. D, X, XP	E, K, X
8	9.85	35½, 28½	D1, X, X2	C3, C4, Mod. D, X, XP	E, K, X
10	12.25	29½	D1, Mod. D, P, XP	C3, C4, X2	E, X
12	14.75	29½	D1, Mod. D, P, XP	C3, C4	
	15.50	29½	D1, Mod. D, P, XP	C3, C4	
15	16.50	28	D1, Mod. D, P, XP	C3, C4	



the loom to beat the filling into place when the harnesses are opening for the next pick, thus locking the filling in place.

The takeup normally consists of two rolls. The cloth passes over the breast-beam and around the takeup roll. This roll ordinarily is covered with card clothing. The type used is 3-ply $\frac{5}{8}$ in. thick, with diamond points.

From the first takeup roll the fabric passes around a second takeup roll. The covering of this roll varies. Some mills use crepe rubber, and some use a gridded rubber. In some instances the roll is not covered at all.

Table III. Looms for single-filling duck

Type of Duck		*Types of Looms*		
F.S. CCC-D-761 Single Filling Duck		*Most Suitable*	*Easily Adaptable*	*Possible in Emergency*
Commercial designation, linear yards. Wt. to 29-in.	Width unless otherwise specified			
Ounces	Inches			
6	30.50	D1, E, X, X2	C3, C4, Mod. D, P, XP	K
7	30.50	D1, E, X, X2	C3, C4, Mod. D, P, XP	K
8	30.50	D1, E, X, X2	C3, C4, Mod. D, P, XP	K
9	30.50	D1, E, X, X2	C3, C4, Mod. D, P, XP	K
10	31.00	D1, E, X, X2	C3, C4, Mod. D, P, XP	K
11	31.00	D1, Mod. D, P, XP	C3, C4, X, X2	E, K
12	31.00	D1, Mod. D, P, XP	C3, C4, X, X2	E, K
15	31.25	D1, Mod. D, P. XP	C3, C4	X2

Table IV. Looms for double-filling duck

Type of Duck		*Types of Looms*		
F.S. CCC-D-761 Double Filling Duck		*Most Suitable*	*Easily Adaptable*	*Possible in Emergency*
Commercial designation, linear yards. Wt. to 29-in.	Width, unless otherwise specified			
Ounces	Inches			
6	30.25	D1, E, X, X2	C3, C4, Mod. D, P, XP	K
7	30.25	D1, E, X, X2	C3, C4, Mod. D, P, XP	K
8	30.25	D1, E, X, X2	C3, C4, Mod. D, P, XP	K
9	30.25	D1, E, X, X2	C3, C4, Mod. D, P, XP	K
10	30.75	D1, Mod. D, P, XP	C3, C4, X, X2	E, K
11	30.75	D1, Mod. D, P, XP	C3, C4, X, X2	E, K
12	30.75	D1, Mod. D, P, XP	C3, C4, X, X2	E, K
15	31.00	D1, Mod. D, P, XP	C3, C4, X, X2	E, K

Table V. Looms for Enameled Duck

Type of Duck		*Types of Looms*		
F.S. CCC-D-741 Enameled Duck		*Most Suitable*	*Easily Adaptable*	*Possible in Emergency*
Weight, linear yds. Min. 50″ wide	Width (minimum)			
Ounces	Inches			
22	50	D1, Mod. D, P, XP	C3, C4	E, K

Table VI. Looms for Olive Drab Duck

Type of Duck		*Types of Looms*		
Army Specifications Olive Drab Duck		*Most Suitable*	*Easily Adaptable*	*Possible in Emergency*
Minimum acceptable weight per square yd.	Width unless otherwise specified			
10.2	34″	D1, X, X2	C3, C4, Mod. D, P. XP	E, K

In a duck loom the takeup is driven by a ratchet and pawl. It is arranged so that the cloth is taken up when the lay is passing front center; that is, when the filling is being beaten into place. Experience shows that this type of takeup is preferable to the worm-driven type of takeup. The probabilities are that any loom which has a worm takeup will have to be converted to use the ratchet type of takeup.

In addition to these main items, there are other changes and additions that are advisable. For instance, a filling stop motion and a warp stop motion are a great help in weaving duck. Temples probably will be needed for light duck. They are not necessary on the heavy numbers.

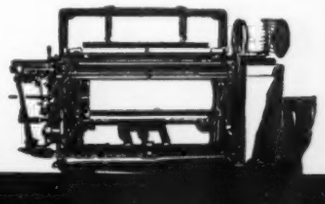
In looms which have a harness motion operating on the closed-shed principle, the cams will have to be changed to operate on the open-shed principle. This will not be a problem for many mills, because the conventional harness cams are of the open-shed type.

Some looms probably can be changed to meet these conditions with reasonable ease. In others, extensive rebuilding will be necessary. In any event, the letoff, the harness motion, and the take-up should approximate the conditions outlined above.

The experience of a manufacture in converting a C & K Model C4 cotton plush looms with Knowles head and full automatic letoff is a good example of what is necessary. This manufacturer planned to make a 60 × 60 duck with 20/2 yarn in warp and filling. His first step was to take off the automatic letoff and put in a drag roll, but he still could not get 60 picks. Next he changed his take-up, and got up to 58 picks. Now he is putting on an under cam harness motion (he first tried to use 12 harnesses) and is endeavoring to make a better warp yarn. With these changes, he has hopes of weaving a satisfactory fabric. This incident shows the difficulties encountered in loom-conversion.

Carpet looms have been modified to produce heavier ducks, such as No. 4, No. 6, and No. 8. Upholstery, drapery, and velvet looms might be adapted to weaving of some types of Army duck.

Shelter tent duck is now being woven on Draper Model E. K. X. X2 and XK looms. Draper Corp. states that when used for that purpose, these looms should have the following equipment: (1) roll and shaft harness motion; (2) drag rolls and heavy lay; and (3) midget feeler and Stafford thread cutter. A Nutting bar takeup is advisable, but not essential. With an 8-in. bobbin and small section shuttle, change to $8\frac{3}{4}$-in. bobbin with shuttle for larger diameter



bobbin. It is desirable, also, to change to a beam head of as large diameter as the loom will take. The looms must be in good condition, with all worn parts replaced, especially in the takeup and letoff. These models are being used for weaving fabrics in the 30- to 40-in. range; looms wider than 40 in. in these models are not recommended for weaving shelter tent duck.

For weaving 8-oz. shelter tent duck, one mill has modified its E looms by putting on a heavy crankshaft, reinforcing the lay, and adding drag rolls. The Model E is satisfactory also for weaving the 2.10-oz. twill, which is being used as a substitute for shelter-tent duck.

No. 9 duck is probably the limit of the 40-in. Mod. D and P looms; No. 10 duck is the heaviest duck for which the 64-in. Mod. D and P looms are recommended. No. 7 duck is the heaviest for which the 40-in. XP is recommended; No. 8 duck for the 64-in. XP. No. 6 duck is the heaviest for which the 36-in. XU is recommended; No. 7 duck can probably be made on the 64-in. XU loom now being built. No. 4 duck is the heaviest for which the 46-in. R is recommended; No. 6 duck for the 60-in. R loom; No. 8 duck for the 76-in. R loom. Extra-heavy wagon-cover duck up to 76-in. wide can be woven on the O looms. The looms should be equipped with drag rolls, heavy lays, etc.

Solving the Problems of Conversion

ONE SERIOUS HANDICAP to the textile industry is that nobody knows how much duck of various types will be required this year to fill all direct and indirect Government demands and civilian needs. Another factor that is delaying conversion is that Government has not stated its policy in reference to awarding of contracts to so-called marginal or high-cost mills. However, from WPB Order M-91 and from other indications, it can be assumed that requirements for duck exceed the productive capacity of the regular duck mills. But until the situation is clarified, the initiative for conversion of his looms and for disposing of the product of the looms which he converts must come from the individual manufacturer.

There are certain general principles which should be followed by manufacturers who contemplate going into the production of duck. First, the manufacturer should determine what particular types of duck are in demand by the Army, the Navy, other Government procurement agencies, and civilian purchasers—especially those who are employing duck in manufacture of finished products, such as gun covers and life rafts, used for military purposes. Second, he should determine what weights, widths, and constructions he can produce most satisfactorily and most economically by modifying the looms installed in his plant. It should be noted in this connection that it is advisable for the individual manufacturer to produce as few types of duck as possible and not to attempt to weave a wide range of fabrics. Third, he should make it a practice to bid on every invitation for those types of ducks he is qualified to make. Fourth, he should not hestitate to call on the regular duck manufacturers and on the loom builders for advice.

In our February issue we announced that the executives of one of the leading duck mills in the country had volunteered to supply answers to any inquiries on manufacturing details needed by prospective bidders on contracts for duck. This and other companies have now issued open invitations to prospective bidders to visit their mills and see for themselves the methods which are being employed. Further, the loom manufacturers have signified their willingness to render all possible assistance to mills which contemplate changing over to duck manufacture. TEXTILE WORLD is glad to offer its services as a clearing house for information on manufacture of duck. Inquiries on any phases of this subject should be as specific as possible and should be addressed to Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York. If these inquiries cannot be answered from data already in our files, they will be forwarded to one or more of the authorities on duck manufacture who have voluntarily offered their services so as to assist our readers with their duck problems.

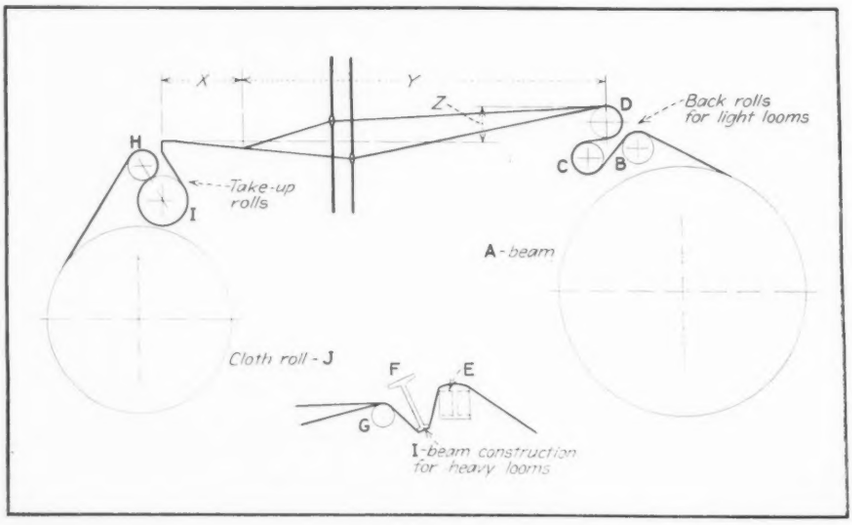


Diagram showing arrangement of letoff, harness motion, and take up of C & K duck looms

Table VII. Characteristics of C & K Duck Looms (Figures in inches)

Type of Loom	*Diam. Beam*	*Diam. Back Rolls*			*I-Beam Construction*			*Diam. Take-Up Rolls*		*Diam. Cloth Roll*	*Distance Breast Beam To Fell*	*Distance Fell to Back Roll*	*Distance Cloth Level To Top Of Back Roll*
	A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*X*	*Y*	*Z*
D1	24 or 31½	3½	3½	4	...	..	...	6⅛	4 3/32	24	10⅝	45⅞	4⅝
D2	31½	...	...	..	*1¼	6	1¼	5½	4½	24	8 7/16	41⅜	6¾
D3	22 or 31½	...	...	..	†	7	3	4 15/16	4 15/16	19½	10¾	34⅝	2 to 3¾
D4	22 or 31½	...	...	..	†	10	3	4 15/16	4 15/16	19½	10¾	33½	2 to 3¼
D5	22 or 31½	...	...	..	†	12	3	6	6	22	11⅞	35	3 to 4⅜

** Rolls supported by cast-iron cross girder. Note — No let-off rolls turn; all are held in a fixed position. † Cast-iron H-section*

New Army Orders Are Biggest Yet

Ask for 351,000,000 yd. cottons and 74,000,000 yd. wool; Guthrie incident

McGRAW-HILL WASHINGTON BUREAU

PAUL WOOTON, Chief Correspondent
Blaine Stubblefield
Irvin D. Foos Carter Field
Robert Colborn M. G. Maury

By BLAINE STUBBLEFIELD

TEXTILE ORDERS greater than any in this war are being placed by the Quartermaster. In late March, QM called for bids on 74,182,000 yd. of woolen and worsted cloth, with delivery up to 285 days. Informal offers are invited on 351,300,000 yd. of cotton cloth, and 40,000,000 yd. of mosquito netting.

The cotton cloth procurement includes water repellent poplin and twill, herringbone twill, silesia lining, olive drab lining for overcoats, canvas padding, khaki uniform cloth, drill and other uniform material. In addition, this procurement includes 60,000,000 yd. of mosquito netting, 12,000,000 yd. of sheeting for mosquito bars, 19,000,000 pairs of underdrawers, 18,000,000 undershirts, 9,000,000 barrack bags, and 851,000 pairs of cotton socks.

In addition to the woolen and worsted yardage, QM is purchasing 10,000,000 wool blankets, 9,250,000 pairs of light and 750,000 pairs of heavy wool socks.

Bids for the cotton goods were opened March 31, and bids for the wool, originally scheduled for March 26, were opened April 2. Offers of cotton fell far short of the volume required; offers of wool goods were said about to equal the requests.

In early March, 19 textile concerns shared orders from QM for nearly 35,000,000 yd. of cotton cloth, at a cost of $20,000,000. The procurement included 8,000,000 yd. of wind-resistant cotton cloth, more than 25,000,000 yd. of uniform twill, and about 3,000,000 yd. of cotton twill. Every concern that offered a bid was awarded a contract.

Other current procurements include $1,250,000 worth of webbing of various sizes and types; 1,500,000 mattresses —with manufacturers entering a voluntary agreement with OPA to hold prices somewhat below recent quotations; 2,000,000 pairs of herringbone-twill work trousers with awards spread among 37 concerns in 19 States; just under a million herringbone-twill work suits, among 22 concerns in 15 States.

These vast textile supplies are being obtained to clothe the new crop of selectees, and as reserve for a possible Army of ten million men or more. Whether our part of the war will be fought with a big ground force, no one knows as yet. Our present force of 3,600,000 men is already adequately provided for. Whether these new procurements are larger than any in the First World War can be told only by groping in file cellars, which nobody has time to do.

MANY HARRIED OFFICIALS of Government and industry were taken aback when the call came for bids on the largest textile procurement yet, on the heels of a WPB announcement that procurement was going over to negotiation entirely. Somebody slipped, but the matter is not worth long discussion because: (1) present bidding procedure is almost the same as negotiation; most bid calls are marked "neg" for negotiation, and QM dickers for prices on everything. There is no pretense of accepting and rejecting bids in the conventional manner. (2) Probably procurement will go all the way over to straight negotiation as WPB said it would.

Another change, already ordered in this case, is the WPB official decision that most industries and companies which have been working under blanket "P" ratings, will be shifted over to the Production Requirements Plan. Between April 1 and June 30, most blanket-rating orders will be revoked or allowed to expire, and companies that have been operating under blanket ratings will be required to apply for priority assistance under PRP.

Under PRP, a company makes a single application for priority assistance, covering all of its estimated materials needs over a period of three months. The applicant submits full information as to his inventories, the end use of his products, etc. Priority ratings are then assigned on the basis of the applications.

Don't do anything at all about this. Within the period mentioned the "P" orders under which you are operating may be canceled, and you will be instructed to make application under PRP, on an elaborate form called PD-25. Form PD-25-x is for firms doing less than $100,000 business per year. But if you are just going into Government contracting, ask WPB to put you under PRP, so you won't have to change.

This PRP program gives the WPB

OEM photo

Paul Wooton, TEXTILE WORLD'S Washington correspondent (left), and Donald M. Nelson, chairman of WPB (right), at recent Conversion Conference of business paper editors in Washington

closer control on the distribution of materials to war and essential civilian industries, and it relieves the manufacturer of many priority details. This is probably the last step on the way to complete allocation by WPB of all strategic materials.

PROCUREMENT of goods and weapons becomes increasingly important, month by month, as this country bumps against the fact that total war involves practically everything made by man. Accordingly, after a generation of hanging onto precedent, and after two years of watching expert enemies build for war, our Army has been drastically reorganized.

President Roosevelt headed a majority in the general staff who did the job. The new setup is an efficiency strip-down patterned after that of Germany—to beat Germany.

The Quartermaster Corps, principal Army purchasing agent to the textile industry, continues as usual, under Maj. Gen. Edmund B. Gregory. At this writing it looked as if textile procurement would continue under QM for the duration, practically all under negotiated contracts.

The new Service of Supply and its relation to the two Army fighting branches: Air Force and Ground Force, is explained in the chart and its legend on page 69.

Notice that Douglas MacKeachie, chief of the Purchase Division of the War Production Board, is also Deputy Director of Procurement and Distribution in the Service of Supply. This is probably not a mere expedient. Events are pointing to possible ultimate consolidation of all Government procurement agencies into one vast service of supply which would provide all goods for both military and civil Government establishments. Probably the Army's Service of Supply would be the nucleus of such an organization.

However, the Service of Supply is not and would not be the top authority on procurement. Nelson recently issued a strong statement on that point, in which he said, "In broad terms, the War Production Board gives general direction and supervision to . . . the War Department, through the Service of Supply."

In other words, an all-inclusive supply service under the War Production Board seems to be in the offing and the prospect should be watched. If it comes, the textile industry, and all other war and essential civilian industries will be selling to one Government agency instead of to the two dozen now procuring.

Reorganization of the Army's Service of Supply had nothing to do with the recent shakeup in the Textile, Clothing and Leather Goods Branch, of the WPB.

ROBERT R. GUTHRIE, chief of that division, had been in disagreement with WPB officials for some weeks. In mid-March he resigned suddenly, and a few days later testified before a sub-committee of the House Military Affairs Committee. He said that Donald Nelson, chairman, had seemed to encourage his resignation.

Mr. Guthrie complained that dollar-a-year men had defended their industries at home to the detriment of the war effort. He mentioned the names of several executives in his division, and charged that they had frustrated his efforts to restrict the flow of raw materials to non-essential civilian goods. He referred particularly to their interference with his intention to curtail the processing of wool for civilian use.

Dr. Claudius T. Murchison of the Cotton-Textile Institute issued a statement saying that ". . . no single individual within any of these Government agencies or on the outside has consciously obstructed the war effort . . . the fault lies in the cumbersome, complicated, labyrinthian structure of Government machinery and the use of procedures which strangle decision, delay action, and entangle execution in a maze of legal technicalities and restrictions." Dr. Murchison said that if the textile industry were given a program and the power to execute it, it would let its own initiative meet every requirement of the Government.

J. A. Rice, dollar-a-year employe of WPB, testified before the Committee that he had recommended strict limitations on business, read a copy of a memorandum by OPA Administrator Henderson suggesting curtailment of the civilian wool supply, and said that Mr. Guthrie's charges had no foundation in fact. Kenneth Marriner, wool consultant, told the committee that Mr. Guthrie's resignation had resulted in a substantial improvement of the work of the Textile Branch.

The Textile Branch seemed destined for reorganization as this was written. But the set-up, shortly after Guthrie's departure, was: Ben Alexander, acting chief; Frank L. Walton, deputy chief; Thomas McKinney, chief of the new cotton section; H. Stanley Marcus, chief of the new apparel section; Arthur Howe, chief of the new fibers section; Harry Dalton, chief of the new rayon-Nylon section; and Bruce J. Brown, chief of the allocations and appeals section.

The Textile Branch incident brought special attention to the wool supply for the emergency. Most people got the idea that the Branch's order to curtail civilian wool consumption caused the trouble. It wasn't that. Most mills accepted the cut without complaint. What they objected to was the effort to get them to mix a high percentage of rayon and cotton with wool. Manufacturers say that takes machinery changes, and that it damages unnecessarily their reputations for all-wool goods. Fiber experts in the Department of Agriculture say that when wool content is reduced too much, the cloth has little of the characteristics of wool.

Little or no doubt is expressed that the heavy curtailment of wool for civilian goods was necessary. Our 1941 clip was the largest on record—455,000,000 lb., but this was less than half of mill consumption for that year. We have on hand all of the 250,000,000 lb. of Australian wool stored here by the British, plus 50,000,000 lb. of British wool from South Africa, all taken over in accordance with the original agreement.

But our regular imports, which will amount to about 60% of our total need this year, are seriously threatened by submarine attack, which has taken a toll of over 50 ships in a recent period of 60 days. Thus, shipping from South American and South Africa are very uncertain, and wool for civilians next winter depends on what can be done to stop these losses. From Australia there is plenty of ship space right now in our returning munitions convoys. But the dread possibility that Japan might overrun Australia must be counted in the betting odds.

The few comparatively plentiful materials in this country include lumber, glass, cotton. Although cotton must now largely replace the normal import of silk, wool, jute, sisal (equivalent to over three million bales of cotton) there is no cotton shortage in sight, assuming good crops, except in the fields of long staple and linters.

LARGER QUANTITIES of rayon were made available to hosiery industry beginning April 1, by WPB order M-37-c, which supersedes M-37-a. The old order required that rayon producers set aside the output of 12% of their viscose and cuprammonium and 6% of their acetate for silk replacement and a "hardship" pool. The new order requires producers to set aside 17% of their viscose and cuprammonium output. The allocation of acetate remains unchanged at 6%. These percentages are applied after defense and export requirements have been met.

As a result of the order, the bulk of women's hosiery made after April 1 will be rayon. The last vestiges of silk

(*Continued on page* 144)

Addenda to Textile War Manual

PRIORITIES AND ALLOCATIONS—AMENDMENTS BY WPB

THE FOLLOWING DIGESTS of priorities, allocations, and price regulations, affecting textiles and related products, supplement portions of the "Textile War Manual" published in the February, 1942, issue of TEXTILE WORLD, pages 75 to 78; and previously supplemented in the March, 1942, issue, pages 61 to 64:

Priorities Regulation No. 8—Issued by the DIO, it provides that all orders which require reports to be made on any of the 43 PD forms, are amended to eliminate that requirement, except for a few general preference rating orders. The forms which have been eliminated all have to do with the application of preference ratings assigned by "P" orders. Regulation No. 8 is the first step in a move to eliminate all unnecessary or duplicating reports. The report forms which remain in use are being carefully studied, and an effort is being made to find others which can be eliminated.

Production Requirements Plan—A specific requirements approach to the control and distribution of scarce materials will replace the use of general or blanket priority rating orders. (See page 65.) Between April 1 and June 30, most of the blanket-rating orders will be revoked or allowed to expire and companies which have been operating under them will be required to apply for priority assistance under the Production Requirements Plan. A modified PRP has been developed for small firms whose business is less than $100,000 a year.

Agave Fiber—WPB amended order M-84, restricting the use of agave fiber, to permit importers to fill contracts with dealers, entered into before Feb. 20, and to permit dealers to fill contracts with jobbers and processors entered into before that date. Tow and other agave fiber waste not suitable for manufacture into cordage or twine may be released to the trade, under Amendment No. 2 issued March 24 to the Agave Order M-84. It can be sold by the trade for bedding and stuffing.

Bags, Cotton—An order (M-107) designed to increase the production of cotton bags was issued March 10 by WPB. The order defines certain constructions of osnaburg, sheetings, and print cloth as "cotton-textile fabrics suitable for agricultural bags" and assigns a priority rating of A-2 to orders for such fabrics.

Binder Twine—In an amendment to Order (M-84) WPB telegraphed manufacturers that during March and April binder twine made of Agave fiber may be delivered to and used by persons having contracts for delivery of sand bags on defense orders.

Blanket Manufacturers—WPB provided in Amendment No. 2, March 25, to the wool conservation order, M-73, as amended and extended through the second quarter of 1942, that manufacturers may complete the production of blankets for which they had warps fully dressed on or before March 15, even though the process takes beyond April 4.

Cotton Duck—A general preference order (M-91) allocating the bulk of the nation's output of cotton duck to the Armed Services and the remainder to essential civilian needs was issued Feb. 28 by WPB. The new order permits deliveries of cotton duck to firms with contracts with a preference rating better than A-2, and may be made to persons holding priority certificates issued by WPB or Army or Navy. Jobbers and processors must have their own certificate, naming the duck mill, and may not get duck on the strength of certificates issued to persons they supply. All duck ordered must be for immediate use and not to replace inventory. Ratings conforming to the order need not be submitted to WPB, but all other ratings are still subject to review. "Enameling duck" is not restricted by the order, and widths narrower than 15 in. or wider than 87 in., and remnants less than 10 yd. long, are not restricted.

The order continues the modifications, issued Feb. 19, which permitted deliveries until March 31 of orders on hand Jan. 15. The order states that such deliveries must not interfere with deliveries of orders under high preference ratings. The order lists over 75 cotton-duck products essential to civilian economy. When quantity of duck needed for these products is determined, a proportion of the nation's looms will be set aside to meet them.

Elastic & Rubber Yarns—WPB announced March 28 that all stocks were frozen in hands of manufacturers. The sale, delivery, purchase or processing of such yarns is temporarily halted, and a permanent order allocation on such yarns for essential war and civilian uses will be issued on or before May 1.

Kapok—The Kapok Conservation Order M-85 was amended March 16 as follows: (1) Extending from March 31 to April 30 the time in which dealers may sell, transfer title to, or deliver kapok to manufacturers for defense items; (2) permitting dealers to purchase from manufacturers and other dealers small stocks on hand for accumulation for Defense Supplies Corp.; (3) correcting the definition of Bureau of Marine Inspection and Navigation requirements.

Manila Cordage—Under Amendment No. 4 to General Preference Order M-36, issued March 7, manufacturers are permitted to sell or deliver March 1 to Aug. 1, five times under their monthly quotas in Amendment No. 3.

Men's & Boy's Suits and Overcoats—An amendment to order M-37-a was issued March 6 to make clear to manufacturers and tailors that the order applies to any kind of sack coat, whether made with a suit or as a separate coat. The amendment curtails the use of wool cloth in the manufacture of coats, trousers, vests or suits. WPB said that retailers of men's and boys' clothing will have to omit trouser cuffs after March 30 for stocks on hand unless the cuffs already have been finished.

Rayon, Viscose Staple Fiber—On March 16, in Amendment No. 2 to M-73, WPB ordered producers of viscose rayon staple fiber to set aside and make available to the worsted industry a specific part of their monthly production, as designated by WPB. The second Amendment, No. 1 to M-73 amended and extended, applies to the second quarter. While the amount of rayon to be made available monthly is not specified in this amendment, the viscose producers have already been notified by the WPB that during April they will have to set aside twice the amount required for March.

Vat Dyes—Conservation Order No. M-103 restricts the sale and use of anthraquinone vat dyes. During the period April 1 to Dec. 31, 1942, no persons shall deliver, accept delivery, or use any of the following vat dyes other than for specified Government purposes: Brown R, (CI, 1151); Brown G, (CI, 1152); Olive R, (CI, 1150); Golden Orange G, (CI, 1096); Golden Orange A, (CI, 1097); Khaki 2G; Olive T; Olive Col;

Addenda to Textile War Manual

Olive Green B; Yellow 3RD. During the period April 1 to June 30, 1942, no persons shall deliver, accept delivery, or use an amount of anthraquinone vat dyes other than those listed above in excess of 12½% of the amount delivered or used during 1941. The order calls also for return of dyes mentioned above in excess of the amount scheduled to be used prior to April 30, 1942.

Wool Clips, Rags & Waste—WPB issued, March 10, an order (M-87) to the effect that olive drab wool clips, rags, and wastes may be sold and used only for manufacture of olive drab wool materials for the Armed Forces.

Wool For Uniforms—WPB emphasized that the A-10 rating given to military uniforms in Conservation Order M-73, does not include the Reserve Officers Training Corps or students taking State or private military training.

Wool, New—Restrictions on the use of new wool during the second quarter of 1942 do not limit the use of new wool to fill Government contracts and other defense orders.

Woolen & Worsted Manufacturers—Under an amendment issued March 10 to the Wool Conservation Order M-73, woolen and worsted manufacturers may fill orders for fabric to manufacture uniforms for Army and Navy officers in excess of the 80% limitation on the use of new wool during the first quarter of 1942; orders will have an A-10 rating. Wool manufacturers are requested by WPB to submit data by April 30 on their blending plans for third and fourth quarters of 1942.

PRICE CEILINGS AND AMENDMENTS BY OPA

Enforcement Provisions of Emergency Price Control Act of 1942 were formally incorporated in 96 OPA maximum price schedules in an OPA order issued March 17. These 96 schedules were issued prior to Feb. 11, 1942, the day Henderson took office under the new law. The March 17 order simply makes enforcement provisions of the law retroactive to schedules previously issued.

Requesting Modifications and Exceptions—On Feb. 12, the day after Henderson took office as Price Administrator under the new Emergency Price Control Act of 1942, he issued Procedural Regulation No. 1 on making applications for modification and exceptions. This applies to all schedules and amendments issued *since* that date. On March 10 OPA issued an order making this ruling apply to all requests for relief under schedules issued *before* that date, so that now, the procedure under *all* schedules is the same.

Bed Ticking—Producers, commission sellers and jobbers of tickings who attended a meeting with OPA in New York on March 7, 1942, individually expressed their willingness to enter into, or to recommend that their principals enter into, a maximum price agreement with the Price Administrator as provided in Section 5 of the Emergency Price Control Act of 1942.

Carded Cotton Yarn—An amendment to Price Schedule No. 33 (carded cotton yarn) permits sellers of "stock yarn" to charge freight to the buyer even though the stock-yarn warehouse is more than 25 miles from the seller's place of business. Stock yarn is defined as yarn owned and warehoused by a person other than the producer. The amendment also adds a provision exempting deliveries against export contracts entered into prior to Feb. 1.

Cotton, Rayon and Mixtures—To stop rapid and unwarranted rise in prices of finished piece goods of cotton, rayon and mixtures, Acting Price Administrator John E. Hamm, imposed a temporary 60-day wholesale price ceiling based on highest prevailing prices from March 7 to March 11, in Temporary Maximum Price Regulation No. 10, effective March 13.

Cotton & Novelty Rugs—Maximum prices on cotton and novelty rugs sold by manufacturers and distributors were set at levels prevailing Feb. 20. Effective March 2, the order will be replaced by a permanent price schedule May 1, after studies of the industry have been made.

Nylon Hosiery—Reports of violations of the price ceiling for women's Nylon hosiery by wholesale houses brought from OPA on March 6, a warning that offenders will be punished. To eliminate possibility of misunderstanding of maximum prices chargeable for Nylon hose delivered after Feb. 9 under contracts prior to Feb. 5, OPA on March 11 issued Amendment No. 1 to Revised Price Schedule No. 95. The original price schedule, which applied from Feb. 5 to 9, established the ceiling at a level no higher than the highest price contracted for by the seller for Nylon hose between Oct. 1 and 15.

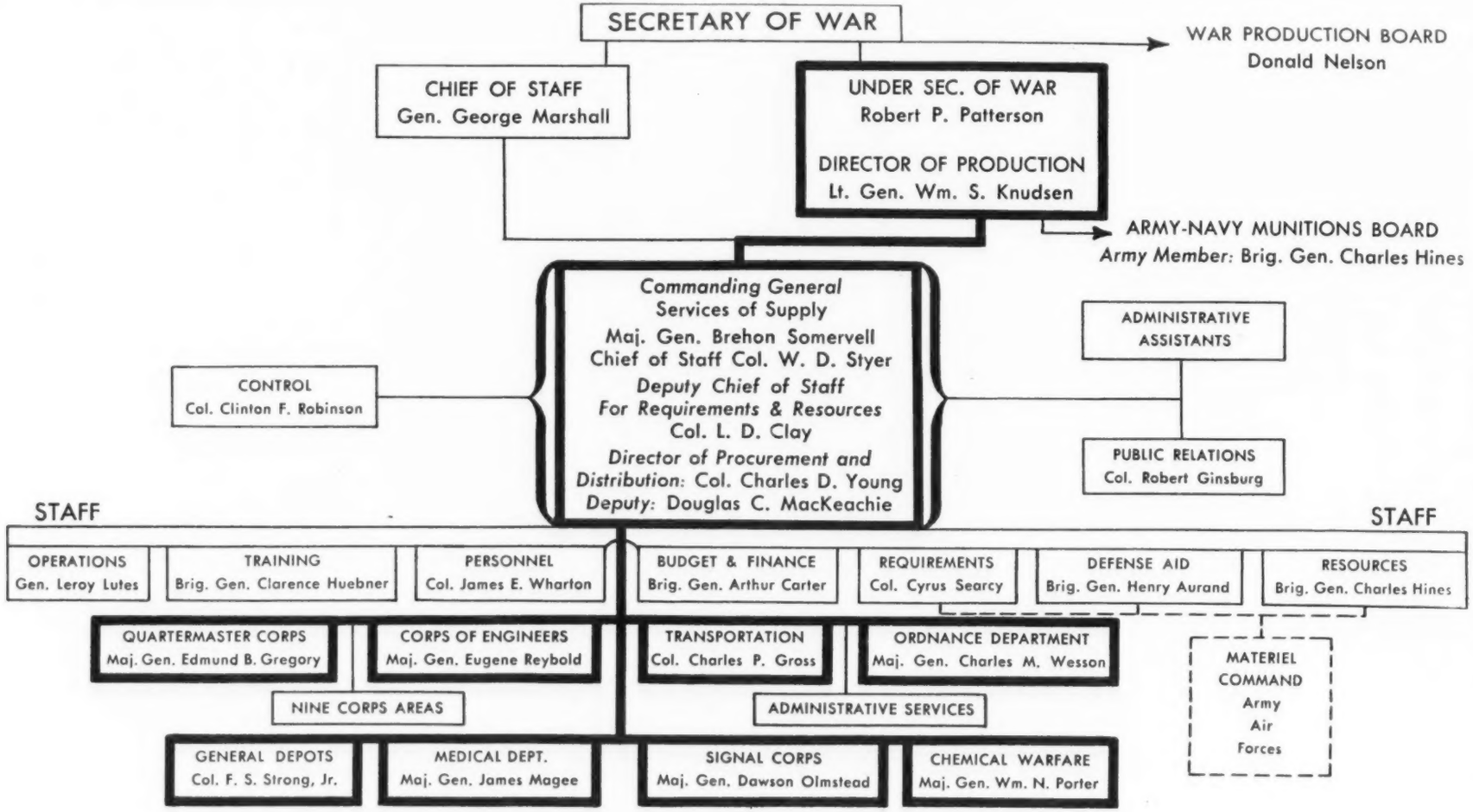
Rags, Old—Monthly reporting requirements of Price Schedule No. 47, apply only to those persons in the trade who have bought, sold, or consumed 10 short tons or more in any one month since December, 1941, OPA said.

Rayon Gray Goods—OPA on March 10 warned buyers and sellers of rayon gray goods that the use of the escalator clauses in sales contracts is in violation of the schedule. Clauses are being used which require the buyer to pay a price above the present ceiling if the ceiling is raised before the goods are delivered.

Specialty Combed Yarns, made with extra-long-staple cotton, and thread yarns—An amendment to Schedule No. 7 (Combed Cotton Yarns) effective March 28, allows extra premiums to specialty mills when spinners use American cotton of greater staple lengths than defined for base-grade yarns, or when they use Sea Island, SXP, Pima or Egyptian cotton to meet high breaking strength or other requirements. The premium is not in excess of 130% of the additional cotton costs, after it is adjusted for a "waste factor." These waste factors are specifically named for each of the various longer staples and types of cotton used in combed yarns. The amendments also clarify and define the method by which a yarn manufacturer is to determine his additional cost. Thread yarn is permitted an additional premium of 6% of base price. This applies in connection with sales of thread yarn to thread converters or manufacturers for use as sewing thread only. Another change permits the seller of stock yarn to charge freight to the buyer even though the warehouse is more than 25 miles from seller's principal place of business.

Wool, Wool Tops, Yarns—Last Dec. 15, OPA imposed a price order on wool, wool tops, and yarns, freezing prices as of Oct. 1. This was the temporary type of price ceiling; its purpose was to hold prices in line while surveys were made as a basis for permanent price schedules. In mid-March the Army announced its intention to call for about 75,000,000 yd. of woolen and worsted cloth, presumably the biggest Army order in history for wool goods. Manufacturers did not want to quote cloth

(*Continued on page* 144)



SERVICES OF SUPPLY, UNITED STATES ARMY

PRESIDENT ROOSEVELT'S sweeping reorganization strips the Army down to three fundamentals: Air Force, Ground Force, and Services of Supply, charted above. The first two do all the fighting and worry about nothing else, because the supply branch waits on them hand and foot.

Signal Corps rigs and operates their communications; Medical Department gives them pills and binds their wounds; Ordnance designs, builds or buys their guns and brings them the ammunition; Quartermaster procures their food and clothing and a thousand personal comforts; Transportation hauls them, bag and baggage; Engineers build and destroy their bridges and fight while about it.

The chart shows all these functions hooked together. Main procurement and service operations are shown in the heavy lines. The Undersecretary of War is responsible for war supplies; under Mr. Patterson is General Somervell, and you can read the rest of the story in the diagram. "Control," in the box to the left of the General, is a sort of progress reporting, which tells at any hour what the inventory of supplies and services is. Notice the Materiel Command of the Air Forces in the dotted square. S of S procures only staple supplies for the Air Force, which buys its own planes and engines, which are highly specialized. Top dog, with supreme authority is the War Production Board, and Donald Nelson, practically, is the Board. S of S does the ordering, but WPB tells it when and where. Because of rapid growth, some of the above names and ranks may be changed by time of publication.

Washington Almost All-Out to Win

Although still a screwy place, the Capital is pulling up its socks for the real push

By DOUGLAS G. WOOLF

WE HAVE MADE some unkind remarks in the past about Washington, the screwball town. Those comments were not exaggerated; and they are still true today. But the good news is that whereas the screwiness was formerly symptomatic of an internal disorder, it is now becoming more and more an external manifestation. Underneath the crazy-quilt there is developing a realistic pattern; a determination to win this war, come hell or high water.

This under-surface transformation is difficult to define, but vitally important to every American. It is, we think, a hopeful demonstration of democracy at work.

It is not a tangible change. The same men, by and large, are running the show. The same differences of viewpoint persist. But there is developing an enforced community of interest which, if understood and encouraged by the nation at large, can easily become the motivating force which will beat Hitler and Hirohito.

We have no desire to exaggerate this trend, any more than we had to overdraw the picture of Washington as a mad-house. Washington is not yet all-out for victory. But the encouraging fact is that it has started to go all-out. In fact, at this writing, it is *almost* all-out. And at this writing it is nearly four months since Pearl Harbor. Four long months, and yet very short ones for a nation to pull up its socks. And that is what we are doing today.

THIS WRITER has practically commuted to Washington since the start of the defense effort in the spring of 1940. He witnessed that first grand surge of determination to prepare this country against any and all emergencies. He saw that grand impulse degenerate into a year-and-a-half of business boom, with capital and labor feeding at the trough, and with the Reynolds and the Wheelers and the Lindberghs and their ilk sabotaging the defense program. He saw Pearl Harbor galvanize the nation into unity—a unity which lasted not much beyond Christmas. He saw the country sink back into complacency, and Washington itself imitate the grasshopper, with plenty of energy but no sense of direction. He saw, shortly after that, Washington aroused to the realization that the impossible might happen: the United States might be beaten.

And now, at long last, this writer sees Washington convinced that we *must* win this war.

That is a miraculous change. To repeat, it shows democracy at work: democracy with its sloth which has already largely wasted 22 months since the start of the defense program; democracy with its sudden emergence, its stretching to its full stature. Democracy asleep is something terrible for its own people to behold; democracy awake is something terrible for its enemies to behold.

We write these words in no screech-eagle mood; we write them in the mood of sober thankfulness that any citizen must experience when he sees this giant stretching its limbs.

IN WASHINGTON TODAY, there are several men who are going to win this war for us. There is General Marshall, chief of staff of the Army. There is Admiral Land, a hard-bitten guy with an earthy sense of humor, who is going to supply the ships. There is Donald Nelson, who is gradually whipping the War Production Board into a going concern. There is General Hershey, whose direction of the selective service act is one of the bright spots of democracy at work. There is William Batt, director of the Materials Division of the War Production Board, who from the very beginning of the emergency has tried to convince America that it was in danger. There is Admiral King, doubling in brass as commander of the United States Fleet and Chief of Naval Operations. These men, and many others, are holding up the right hands of General MacArthur and the other commanders in the field force.

SO MUCH for Washington. How about the country at large? There is very definite evidence that the awakening in Washington has been due in no small measure to an aroused public opinion back home. That, again, is democracy at work. By and large, in a democracy Government does not, can not, force the lead. A leader without a procession is as sorry a spectacle as a procession without a leader. It is only when the leader and the procession get together at the line of march that something happens. That something is happening today—in Washington and in the sticks.

But it is still true that the average American citizen and the average member of Government (that there are many exceptions merely proves the rule) are not yet *fully* aware of the job ahead. The complete awakening is near at hand. Casualty lists are due soon. This writer has long believed that front-page display, in large type, of men lost in action is essential in the present crisis. There have been military reasons for their suppression. From our last trip to Washington, we gathered that those lists will now be published. They may be out before this issue reaches its readers.

They will tell us, what most of the families involved already know: that this is no phony war. So will bombs over America. They too are due soon. Washington knows it. The rest of us should realize it also.

Blood, sweat and tears are ahead for America: more bitter than this country has tasted since 1861–65.

Washington has pulled up its socks. The extent to which the rest of the country helped pull them up is now an academic question. The real news is that the waiting period is about over. We offer it as the most encouraging item that has appeared in this publication since Pearl Harbor.

BUY A SHARE IN
AMERICA

DEFENSE SAVINGS
BONDS AND STAMPS

Machine-Hour Expansion Needed

To meet "apparently limitless demand" says Ray Bell in annual A.C.T.M. survey

ONLY ANOTHER MAJOR EXPANSION in the average number of machine hours worked throughout the year will enable the cotton-textile industry to meet "the present apparently limitless demand," according to W. Ray Bell, president of the Association of Cotton Textile Merchants, in the association's eleventh annual survey, reproduced on this page. New high-record figures for 1941 in practically every major statistical category are shown in the survey, together with a diminishing but still adequate supply of essential cotton textiles for civilian use.

Cotton consumption of 10,583,000 bales more than doubled the low figures at the beginning of the decade, while the output of woven cloth nearly doubled, and spinning activity increased 75% despite dismantlement during the decade of one-fourth of the equipment in place at its beginning.

Even on top of all-time record levels attained in the year preceding, 1941 showed 31% increase in consumption of raw cotton, 24% increase in mill operations as measured by spinning activity, and the largest year-to-year gain ever recorded in cloth production.

The all-time high record production of 11,898,362,000 sq. yd. of cloth in 1941 represented a 24% gain of 2,300,000,000 over 1940, and of 3,500,000,000, or a gain of 42.5%, over the pre-war five-year average, 1935-1939.

"Following the pattern of previous experience," the survey states, "more intensive operation of existing equipment was chiefly responsible for these unprecedented records of cotton consumption and mill activity. The increase in running time was effected by divergent methods, but basically it represents a major extension of round-the-clock operations on a 40-hour three-shift basis plus considerable overtime work.

"Early activity for the current year has started at even higher levels. Cotton consumption reported for January and February showed a net gain over last year of 246,000 bales of purely mill consumption for the first two full months of war effort. The total was 1,840,000 bales." It is stated that spinning activity also showed betterment of more than 15% over the 1941 period.

"Whether this fresh peak of activity can be maintained or increased throughout the year," the statement continued, "will depend in large measure upon the success of individual plants in overcoming limitations of labor supply and equipment, especially where there is a lack of balance in the machinery for preparatory processing.

"Since June 1941, the last month of free marketing, there has been a decline of 1.5¢ per lb. in mill margins, accompanying the rise of 3.9¢ per lb. in cloth prices and a gain of 5.4¢ per lb. in raw cotton prices. Meanwhile, wage costs, the chief element in mill margins, have steadily risen to new heights for all time.

"To cope successfully with an apparently limitless demand, all the industry's energy and ingenuity will need to be directed on productive effort. In past years, no potential demand seemed beyond the powers of this industry whose chief characteristic was productive flexibility. In its present supreme test, under the spur of wartime pressure, it will not be found wanting. With no increase in its now limited facilities, the only way is through another major expansion in the average number of machine hours worked throughout the year."

	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
EQUIPMENT											
Spindles in place at beginning of year	32,326,526	31,442,174	30,938,340	30,889,484	29,253,444	27,700,194	26,704,476	25,986,620	24,943,302	24,532,146	24,146,130
Increase or decrease from preceding year	1,281,968	884,352	503,834	48,856	1,636,040	1,553,250	995,718	717,856	1,043,318	411,156	386,016
New installation, additions and replacements	143,908	348,568	529,840	214,874	469,316	772,724	178,280	349,416	414,974	449,848	
OPERATION											
Spindles active at any time during year ending July 31st	27,271,938	26,894,860	27,742,462	26,700,946	24,664,428	25,419,110	24,774,004	23,731,050	23,585,938	23,389,454	
Spindles idle during same period	5,054,588	4,547,314	3,195,878	4,188,538	4,589,016	2,281,084	1,930,472	2,255,570	1,357,364	1,142,692	
Average number of active spindles based on twelve monthly reports	23,250,757	24,873,270	25,119,435	23,421,150	23,373,147	24,079,936	22,042,442	22,306,734	22,410,483	22,945,121	
Intermittent spindles (being the difference between average active spindles and those active at some time during year)	4,021,181	2,021,590	2,623,027	3,279,796	1,291,281	1,339,174	2,731,562	1,424,316	1,175,455	444,333	
Percentage relation of average active spindles to spindles in place	71.92%	79.11%	81.19%	75.82%	79.9%	86.93%	82.54%	85.84%	89.85%	93.53%	
Spindle hours run	70,218,347,911	86,580,232,828	75,711,412,882	76,017,361,934	91,773,252,676	95,591,131,816	75,925,187,178	92,559,108,308	98,183,985,391	121,772,205,730	
Hours run per average active spindle	3,020	3,481	3,014	3,246	3,926	3,970	3,444	4,149	4,381	5,307	
MARKET											
Production in square yards	6,278,222,000	7,866,040,000	6,878,579,000	7,135,276,000	8,613,837,000	9,445,914,000	7,502,168,000	9,043,966,000	9,593,557,000	11,898,362,000	
Exports in square yards	375,446,000	302,042,000	226,306,000	186,565,000	200,501,000	236,251,000	319,634,000	367,466,000	357,925,000	* 500,000,000	
Imports in square yards	29,436,000	41,348,000	41,533,000	63,674,000	114,195,000	147,320,000	98,282,000	111,817,000	84,344,000	* 75,000,000	
Available for domestic consumption	5,932,212,000	7,605,346,000	6,693,806,000	7,012,385,000	8,527,531,000	9,356,983,000	7,240,816,000	8,788,317,000	9,319,976,000	11,473,362,000	
Population at July 1st	124,974,000	125,770,000	126,626,000	127,521,000	128,429,000	129,257,000	130,215,000	131,200,000	131,954,000	* 133,102,000	
Available for per capita consumption in square yards	47.47	60.47	52.86	54.99	66.40	72.39	55.61	66.98	70.63	86.20	

* Partly Estimated

Georgia Operating Executives Meet

Discuss carding and spinning problems; higher card speeds, synthetic aprons

CARDING AND SPINNING PROBLEMS were discussed at the spring meeting of the Textile Operating Executives of Georgia, held recently in Atlanta, Ga. Erwin R. Lehmann, general chairman, and superintendent of the Langdale Plant of West Point Mfg. Co., presided; Floyd B. Watson, Griffin (Ga.) Div. of Thomaston Cotton Mills, led the carding discussion; and William R. Beldon, Clark Thread Co. of Ga., led the spinning discussion.

William N. Banks, Grantville, Ga., president of American Cotton Manufacturers Association, delivered the opening address. He discussed the problems ahead of the American industry, and quoted figures showing our power to produce and our capacity to use that which we produce. He pointed out that the textile industry has consumed eleven million bales of cotton on $\frac{1}{3}$ less spindles, and predicted that twelve million bales will be consumed in 1942. He spoke of the accomplishments of American industry in meeting its problems, but pointed out that we must produce now as never before in order to meet the threat of the enemy's early advantage. People must be ready, if the Government asks it, to forego social gains in this emergency in order to overcome shortages in men and materials, he said.

Erwin R. Lehmann, general chairman of the group

William N. Banks, president of ACMA, addressing the Georgia Operating Executives

In the carding discussion, members were asked if it had been found that increasing card production had lowered breaking strength or quality of yarns. It was the consensus of those present that no bad results are obtained, that quality is not lowered, and that breaking strength is maintained. It was interesting to note that most of those reporting stated that as production is increased, waste decreases. One member stressed the proper preparation of the stock before carding as most essential. Another mentioned that no bad effects of vibration or over-heating were found even when card cylinders are run at 208 r.p.m., but that his mill has dropped back to 200 r.p.m. of cylinders. Up to practical limits, an increase in production is desirable, but beyond that both quality and breaking strength are lowered, it was agreed.

It was brought out at the meeting that G. H. Dunlap, under the sponsorship of the Textile Foundation, is conducting tests on card speeds in 15 mills. [A preliminary report by Professor Dunlap appears on page 78 of this issue.]

LICKER-IN GRINDING and straightening machines in use by several members were discussed. One member reported that he uses a Carborundum wheel for grinding after the teeth are straightened, and that this produces a uniform condition that gives good results. Other members having experience with the licker-in grinding machine agreed that good results are obtained; and one mill man stated that in a test where a nep count was made, less neps were noted after grinding. One man said that he only straightens the licker-in teeth, but does not grind. The belief was general that much more can be done by careful research on this problem.

On the question of proper length of time between grindings of cylinder and doffer clothing, it was the opinion of many that 200 hr. between grindings is good practice when carding 15½ lb. per hr., which means that about 3,000 lb. of stock is carded. The foregoing is based on a cylinder speed of 165 r.p.m., doffer speed varying from 7 to 11½ r.p.m., and ⅞- or $\frac{15}{16}$-in. cotton. One member reported that he grinds every 400 hr., or after production of about 4,800 lb. of 1-in. cotton, and

William R. Beldon, conducting the spinning discussion

A group of members, left to right: Howard Hart, Southern Brighton Mills, Shannon, Ga.; John Federline and Jim Bone, West Point Mfg. Co., Lanett, Ala.; George Murphy, H & B American Machine Co.; W. C. Hames, Edward H. Best & Co.

that his licker-in speed is 435 r.p.m. and his doffer speed is 8½ r.p.m. One recommendation from the floor was that fillet on the grinding rolls be changed after grinding 10 cards.

On the question of the unevenness of picker laps, some suggestions as to the causes of the unevenness and their remedy were made. Some causes named are: irregular air currents due to belts slipping on fans; clogged vents or screens; evener mechanism not working properly due to accumulation of waste; worn gears on the feed rolls; and poor preparation of stock previous to picking. All these can be remedied with proper cleaning and maintenance schedules.

In a discussion of distribution of drafts between front and back rolls on long-draft roving frames, several interesting points were brought out. One member stated that in making 1 HR. from 65-gr. sliver, a back draft of 3.45 and front draft of 2.25 produced a smooth roving which subsequently was satisfactorily spun into 12¼s yarn. Another member stated that contrary to machine builders' recommendations, he uses a higher draft on the back rather than on the front. Others reported that they follow the recommendation of the machine builders and use the higher draft on the front. One member using 6-roll long-draft frames gave figures on drafts he is using for making 1.5 to 4.40 HR. from 60 gr. sliver, and in each the back draft was smaller than the front.

Grady Bradshaw of West Point Mfg. Co. addressed the members on the human side of the industrial outlook. He asserted that the human side of business is the most important and that the tempers and attitudes of men at machines mean much to production.

SPINNING PROBLEMS. William R. Beldon, opening the spinning discussion, asked for members' experiences with synthetic aprons. It was reported that synthetic aprons give a higher break on coarse rovings; but one member stated that on a frame of 208 spindles equipped with synthetic aprons it was necessary to make an 18% replacement due to stretch. Another mill man stated that on a 6-day test run with a frame equipped with 50 top and 50 bottom synthetic aprons it was necessary to replace none of the top and seven of the bottom; regular 2.2-oz. and 1.6-oz. slip rolls were used in the tests discussed.

Several systems of keeping uniform diameters of rebuffed front rolls were described. One man stated that he moves rebuffed rolls from the front to the middle or back lines; others reported that they rebuff front rolls on an entire frame and then move them to middle or back. It was the opinion of many that the latter is the better method of obtaining uniformity.

Traveler life, and speeds for different ring diameters, were discussed. One member stated that in a 12-day test run he replaced 25% of the travelers on a 2-in. ring, 7,500 r.p.m. spindle speed. Another with 2⅛-in. ring stated that 20% came off in twelve 24-hr. days. Several favored a change of traveler once a week, based on 144-hr. operation. One member observed a 2% loss between changes at 144-hr. intervals; another using 9,350 r.p.m. spindle speed and 2-in. ring, changing travelers every 240 hr., observed a traveler loss of 35%; and still another, using 10,000 r.p.m. spindle speed, 2⅛-in. ring, and 144 hr. between changes, observed a 6 to 8% loss. It was conceded that losses are higher on lighter travelers.

On the question of the best place to stop ring rails when doffing spinning frames in order to give the best pick-up at the start on Barber-Colman spoolers, it was the consensus of those present that for warp wind the best place to stop is ⅓ the way from the top; and that on filling wind, 2 in. from the top or the bottom is best. One mill man mentioned that his mill uses a stop motion for stopping the rail; but it was considered advisable for other mills to weigh the loss of time at the spinning frame against the gain at the spooler before the practice is adopted.

New members of the executive committee were elected to replace three members whose terms had expired. The three men elected are: T. E. Raht, J. W. O'Neal, and Wayne Hempstead.

Mildewproofing Army Fabrics

Determination of percentage of copper

METHODS EMPLOYED in mildewproofing Army fabrics with copper napthenate were outlined in an article in our March issue. Although the specifications for sandbag fabrics call for a copper content of not less than 0.8% nor more than 1%, no method for determining the copper content is given in those specifications.

The following methods have been suggested by R. A. Allen, chief chemist, Nuodex Products Co.: Weigh out about 50 grams of cloth and cut up into small pieces. Digest cloth in a mixture of 150 c.c. water and 150 c.c. conc. nitric acid for 20 min., near boiling point. Filter, and wash the pulp with hot 1% nitric acid. To the filtrate add 15 c.c. conc. sulphuric acid and boil down with concentrated nitric acid to SO_3 fumes, as many times as is necessary to destroy organic matter. Dilute in a 500-c.c. volumetric flask. Determine copper by one of following methods:

Electrolytic Method: Take a 100-c.c. aliquot and add 3 c.c. conc. nitric acid which has been boiled free of nitric oxide. Then plate out the copper at 1.5 amperes.

Iodometric Method: Take a 50-c.c. aliquot and add a 1N solution of NaOH dropwise until a slight permanent precipitate is formed. Add 7 c.c. of 6N acetic acid and 3 grams of potassium iodide. Stir to dissolve and then titrate with 0.1N sodium thiosulphate solution, adding starch when the color of the iodine has become pale yellow.

Outerwear in Wartime

Convention discusses shortages, hears two QM officers, and reelects R. H. Wyner

SHORTAGES, RESTRICTIONS, CHANGES—these were the words most frequently heard at the 24th annual convention of the National Knitted Outerwear Association at Hotel Astor, New York, Mar. 24. Maj. F. M. Steadman, of Philadelphia Q. M., at the afternoon session, and Maj H. F. Colt, pinch-hitting for Brig. Gen. C. L. Corbin, at the banquet, brought messages from the Army. Arthur Besse, president of National Association of Wool Manufacturers, Raymond W. Jacoby, dye technician of the Ciba Co., and Sidney S. Korzenik, executive secretary of the association, gave the latest news on shortages, restrictions and changes.

R. H. Wyner, of Shawmut Woolen Mills, Stoughton, Mass., president of the association, presided at the afternoon session and at the banquet. He, and the rest of the slate, were reelected to office for the ensuing year.

"The clothing which members of your organization are manufacturing," said Major Colt in the banquet address, "is of vital importance to the success of the Army in cold climates. This has been effectively proven in this winter's Nazi campaign in Russia. I can assure you that American soldiers will not be the victims of lack of proper clothing. We shall continue, as long as possible to use all-wool fabrics to protect the health of our soldiers.

"By the end of this year our President has announced an Army of 3,600,000 men. To properly clothe that Army will require more than our entire domestic wool clip. Any increase over this will require the use of imported wool, of which, as you all know, stocks—both private and Government—are available in some quantity; and imports are still continuing to flow into this country.

"The supply, however, is not sufficiently large to avoid the necessity of curtailing considerably the use of wool for civilian purposes. Therefore, manufacturers who wish to continue making civilian goods will probably find themselves rather heavily restricted for the balance of this year; and they may be well advised to study every possibility for using other fibers such as rayon and cotton in their blends."

Major Colt referred to the two types of Army sweater, the long-sleeve and the sleeveless, as the principal items the knitted outerwear industry is supplying at present, and to knit wool caps and toques which have recently been ordered in considerable quantity.

Major Steadman brought a message from Brig. Gen. McCain in command of the Philadelphia QM Depot, in which he gave three words as slogans "Work, Direct, Cooperate" and he added "The shorter the war, the longer the peace." The major pointed out that the soldier must maintain his health to maintain his efficiency, and clothing, along with food, plays an important part in maintaining health. The quality must be high enough, he said, to do the job set, but not so high as to be uneconomical.

"We draw up specifications," he said, "not only to get suitable materials but to put you all on the same footing. They must be so written as not to be misinterpreted, as we cannot choose those with whom we do business. Uniformity means morale, and morale means victory."

ARTHUR BESSE pointed out that when WPB gave the first order restricting use of wool even on army goods, it was done with the idea of equalizing activity, but, coming unexpectedly as it did when mills were taking civilian business for future delivery, it produced difficulties since some mills had to dig into their supply of wools held against civilian orders in order to take care of their military responsibilities. He said that mills had been careful not to make discriminatory cuts and to be as fair as possible in working out the limitations. Buyers, he pointed out, should also be fair, and not contend that they were regular customers of a mill from which they once bought yarn, nor to insist on receiving yarn against some order which was not yet even specified.

"If you have a complaint over your treatment on yarn," Mr. Besse told the knitters, "take it up with Mr. Korzenik, and if he considers the complaint justified he will take it up with us and we will get the answer. If and when the wool stock pile is larger or imports available, only then can we quarrel with orders restricting civilian use of wool."

Raymond W. Jacoby pointed out that the dye situation was fluctuating almost daily because materials used in making dyes were also used in the war effort. These include toluene, toluic anhydride, salicylic acid and aniline. Dye sales for war work were recently about 40% of the total sales, he said. Productive capacity of necessary chemicals is increasing, but consumption is also increasing, with a resulting see-saw situation.

Mr. Jacoby stressed that there were no "good" or "bad" dyestuffs—that each had a place and should be used in relation to its properties. Some fastness standards will have to be relaxed, but he urged that manufacturers should not capitalize on the situation to pass out inferior goods. The vat and chrome colors will be commandeered for the duration, he said; acid colors are in fairly easy situation; direct colors, irregular with some in a bad way; acetate colors in bad way and likely to get worse; developed colors, only fair. Dye companies have fair inventories, he said, but when exhausted, no one knows the extent to which they can be replenished.

Executive-Secretary Korzenik in his annual report said, "The industry stands on the threshold of sweeping changes. It will have to contribute increasing production, wherever possible, to the needs of the armed forces; and, if it is to survive, it will also have to find the means somehow to fill the civilian needs it has continuously served.

"For some industries, the requirements of the war effort are clear, and there remains only the problem of producing in quantity and with speed. For knitted outerwear, the course is not so well defined. Requisition of knitwear, though increasing, has been limited. Articles are still in development that will perhaps be used by the armed forces in substantial quantity. Our role there is still in the making.

"The association has investigated items called for by the Government other than knitwear to discover other possibilities of Government business to which some of our members may devote part or all of their equipment. Some of these are sandbags, field jackets, and other articles for which the Government supplies material and for production of which only cutting and sewing equipment are generally required.

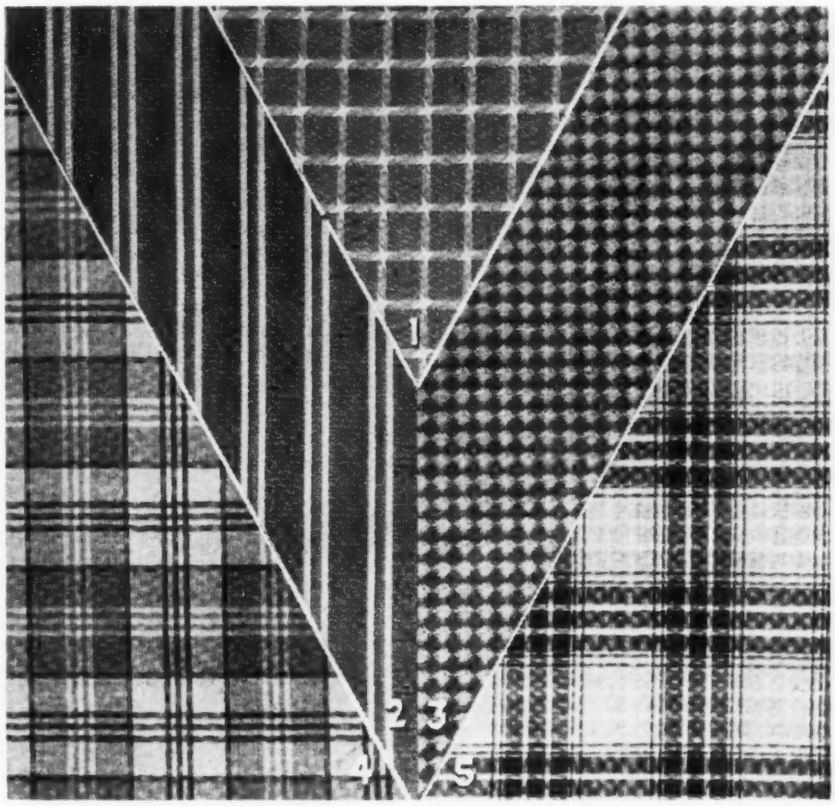
"As for civilian supply—and it is here that the problem is critical for most members—the shortage of raw materials looms as industry problem number one. Ingenuity for achieving novelty effects in the use of new materials, inventiveness in the creation of new items—both factors which account so largely for the growth of this industry—will have to be relied upon to see it through this troubled period."

College Girls' Victory Fabrics

Seen at annual style show sponsored by Textile School of N. C. State College

By T. R. HART

Professor of Weaving and Designing
North Carolina State College



ON APRIL 30, 138 North Carolina college girls will participate in the 15th annual style show conducted by the Textile School of North Carolina State College and the home economics departments of ten North Carolina colleges for women.

These young women will model a variety of costumes, ranging from sportswear to evening dresses which they have made as a part of their regular classroom work in home economics. Fabrics for the costumes were selected from over 300 patterns designed and woven at North Carolina State College by textile students from cotton, spun rayon, wool, and combination yarns manufactured and dyed in the school, or from filament rayon yarns secured from the rayon producers.

Textile officials are cordially invited to attend the style show, which attracts many visitors to the college campus, and also the 23rd annual Students' Textile Exposition which will be held on the same day.

Five of this year's more popular fabrics are shown and described on this page. All five are cotton and were made from 60/2 yarns.

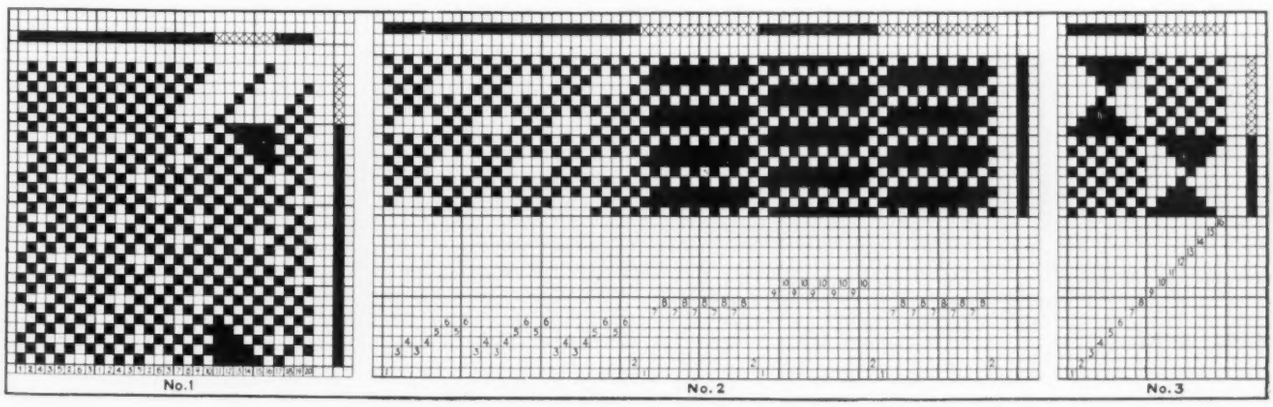
No. 1. Novelty cotton check with a granite weave ground. Construction 68 x 68. Warp and filling arranged 24 light green, 6 white.

No. 2. Pique stripe on a filling float ground which gives somewhat of a rough surface to it. Ground 2 per dent and pique stripes 4 per dent in a 32 reed. Warping plan 26 medium blue, 12 white, 12 medium blue, 12 white. Filling medium blue.

No. 3. Diamond color and weave effect. Construction 68 x 68. Warp and filling arranged 8 red, 8 white.

No. 4. Plain-woven check. Construction 68 x 68. Warp and filling arranged 4 dk. blue, 24 white, 4 dk. blue, 4 white, 4 dk. blue, 4 white, 4 dk. blue, 24 white, 4 dk. blue, 24 lt. blue, 4 white, 4 lt. blue, 4 white, 4 lt. blue, 4 white, 24 lt. blue.

No. 5. Plain-woven check. Construction 68 x 68. Warp and filling arranged 12 brown, 4 white, 12 brown, 4 white, 12 brown, 2 yellow, 2 brown, 2 white, 2 yellow, 2 brown, 2 white, 12 yellow, 4 white, 12 yellow, 4 white, 12 yellow, 2 white, 2 brown, 2 yellow, 2 white, 2 brown, 2 yellow.



Rayon Warp Sizing Practice

Up-to-date methods for handling viscose and acetate yarn to insure best results

Differences of opinion exist among mill men as to correct methods of slashing rayon yarns. The author of this short series of sizing articles, has had many years of experience in the textile industry, and the procedures recommended are based on that experience.

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By ARTHUR C. WAYMAN

SLASHING, it is stated frequently, makes or breaks a warp. In fact, the slashing room is called often the bottleneck in the production of woven fabrics because a cloth is no better than the poorest yarn contained.

Soft warps, or those which do not have sufficient size, and hard warps which are, in reality, overslashed and sometimes even burnt, are constantly a source of trouble to the weave room. Such warps can lower the efficiency ot an entire weaver's assignment, and in addition produce bad work.

Soft warps are caused by low temperatures of the sizing solution and of the drying cylinders. Insufficient submerging of the yarn in the quetsch section, tub, or size box and excessive yarn speeds in relation to the construction of the warp are also contributing factors. Another cause for the formation of soft warps is improper regulation of level ot the sizing solution which frequently happens when the size fed is less than the amount of liquid absorbed by the yarn. In other words, this defect comes under the category of insufficient submerging, but this condition is also caused by the size pan not being raised to correct height.

Details of slashing may best be observed by following the sequence of operations and considering the problems involved in actual production. The section beams are placed in their respective positions in the creel, or feed rack. All yarn ends of each beam are held securely between two strips of gummed paper as they are delivered from the warping room, so a comb can be inserted to pull the yarn from the beam forward. The ends of that beam are then entered in the hook reed, one end to a dent. The ends from the remaining section beams are brought forward, one beam at a time, and handled the same as the first beam. When all the ends are entered in the hook reed, the total number of ends will be in each dent as there are section beams. For example, 8 ends will be placed in a dent when 8 section beams are used. When this work is completed, all the yarn ends are tied into two bunches in front of the hook reed and are then attached to two leader ropes previously brought from around the drying cylinders.

At the delivery end all yarn ends are dropped into a zig-zag comb which can be adjusted to the desired beam width. After securing the warp to the loom beam, the lease and breaker rods should be inserted.

A suitable rod should separate yarn sheets from each two section beams during the entire running of the set. This procedure will save much time when leases are inserted and will assist in locating broken warp ends.

APPLICATION OF SIZE. In the actual application of size liquid to the yarn, the following factors must be considered: (1) the submerging of the yarns in the size liquor, (2) the pressure used in squeezing the sized yarns, (3) the amount stretch given to the yarns. All these operations take place simultaneously as the warp passes around and between the quetsch rollers. Yarns of different types require varied treatment. However, in considering this problem, it should be remembered that viscose yarns will withstand higher drying temperatures, but acetate yarns, because of their properties, are to a certain extent resistant to size mixtures and require a higher size temperature to assure the penetration of the size liquid into the yarn structure.

A 3-roll arrangement commonly found in quetsch sections is illustrated in Fig. 1. The rollers, in this instance, are placed directly above one another. When acetate warps are to be slashed, the warp passes over a guide roll *a*, into the size bath where it encircles the lower quetsch roll *b*, and around the quetsch roll *c*. Thus, acetate yarn passes into the size bath and receives two squeezings, between the nips of the rolls *b*, *c*, and the rolls *c*, *d*. Such a form of immersion and squeezing is necessary to assure sufficient penetration of the size into the yarn structure. However, as

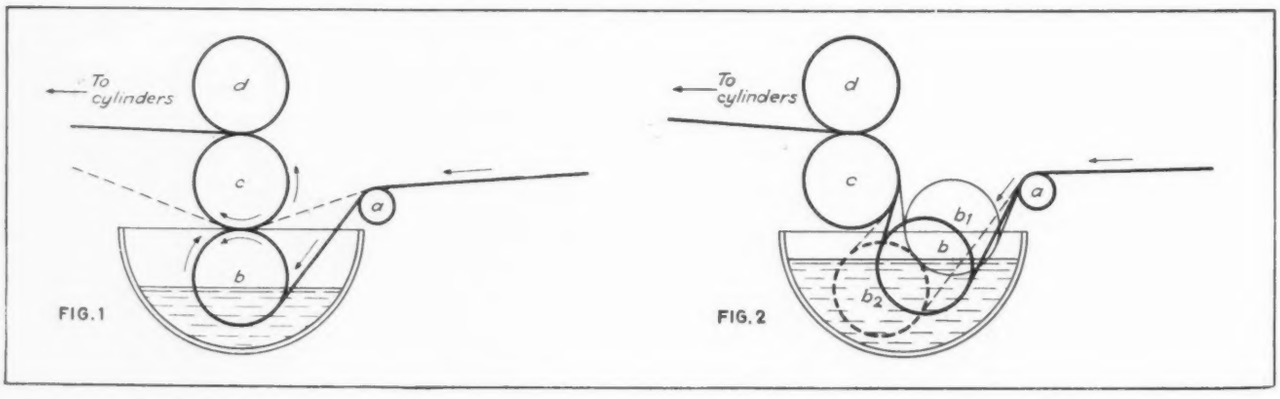

Fig. 1. Threading of yarns through quetsch.

Fig. 2. Use with a movable bottom quetsch roll.

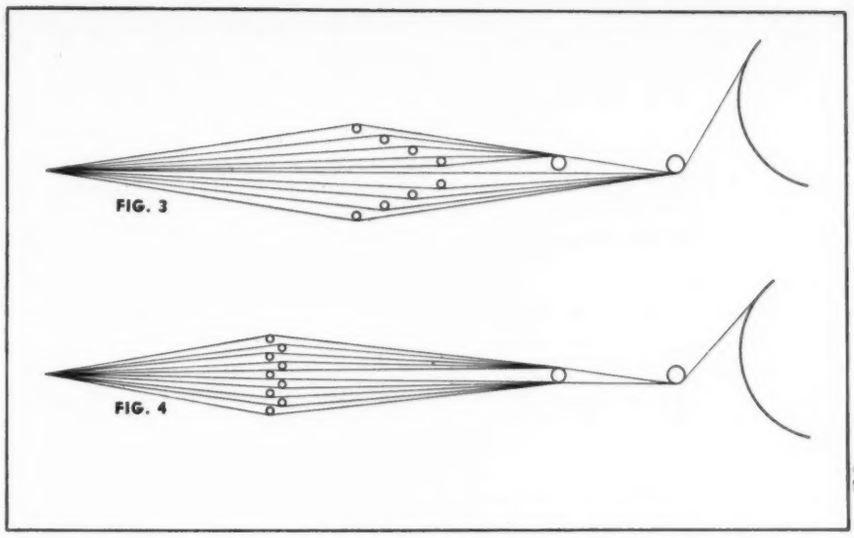

Fig. 3. Approved method of inserting split rods. **Fig. 4.** Split rods placed in a limited space.

viscose rayon yarn will absorb size readily, it may be threaded directly between the lower quetsch rolls *b* and *c* as sufficient size will be obtained simply from that carried by the lower roll. Viscose rayon yarns will pick up enough size when threaded as illustrated in Fig. 1 by the dotted line. However, it is advisable to have roll *b* covered with a felt sleeve to assure uniform pick up of size. If the roll was uncovered, whatever size carried on the roll would run off during a stoppage and necessitate a partial revolution before size would be carried to the yarn. Such action causes streaks to appear in the sized yarn.

Another system of submerging yarn is shown in Fig. 2. This method is considered a superior arrangement by many mills. The submerging roll *b* is adjustable as illustrated by the three positions, *b*, b_1, b_2. Such a provision allows adjustment for more or less pick up of size; i.e., position *b* and b_1 can be used for a viscose rayon warp requiring less sizing and for a yarn which absorbs size quite readily. For a heavy acetate rayon warp, position b_2 permits greater absorption, and consequently produces a yarn well penetrated with sizing. Another advantage of this arrangement of quetsch rolls is that better control is maintained over yarn stretch. A change in position of the lower quetsch roll will, in reality, control the length of time the yarn is immersed in the size. Any variation in size immersion will affect directly the degree of size penetration. Then, it is possible to regulate the lower quetsch, or size, roll to allow longer immersion of yarn without sacrificing slasher speed and still permit the size to penetrate into the structure of the yarn.

Another important factor is the amount of pressure exerted by the rollers upon the yarn. Ordinarily, about 650 lb. of pressure is sufficient at the quetsch. If the pressure is low, difficulty will be encountered in gaining the proper yarn elongation. Then, if the yarn is squeezed under too great a pressure, most of the size will be forced from the yarn and the ends flattened.

Size temperatures are also of importance as too low a temperature will not allow sufficient penetration into the yarn structure to be of value. If on the other hand, size temperatures are too high, the yarn may be injured and the size viscosity varied. Ordinarily, a temperature of 160° F. will prove satisfactory.

DRYING OF SIZED WARPS requires great care if detrimental characteristics are not to be imparted to the slashed yarns. It is common practice to cover a number of the drying cylinders in a multiple-cylinder slasher to permit maximum slasher speeds without impairing the quality of the product. Wet size if brought in direct contact with hot drying cylinders would stick; hence if the first two or three drying cylinders are covered with a canvas blanket or sleeve, these cylinders may be operated at higher temperatures without the wet sized yarn sticking.

A seven-cylinder sizer having the first three drying cylinders covered may be operated with the following cylinder temperatures. The first three cylinders should have a temperature of about 220° F.; the fourth cylinder 210° F.; the fifth cylinder, 190° F.; the sixth cylinder, 160° F.; and the seventh cylinder, 120° F. A five-cylinder sizer having the first two oylinders covered may operate with the following temperature ranges. Cylinders one and two are maintained at 230° F., the third and fourth cylinders at 190° F., and the fifth cylinder at 120° F. Regardless of the temperature ranges maintained, they should always be such that the yarn is dry—that is, not wet or sticky—by the time it reaches the uncovered cylinders. If the ends are not dry, they are likely to stick to the drying cylinders, which may result in streaky goods.

COVERING THE CYLINDERS. When covering the first, second, or third cylinders, it is advisable to boil the material to be used as covering in order to remove all foreign substances which this covering may contain. Do not select too heavy a material, as much heat may be dissipated because the covering simply acts as a carrying agent. After slashing each set, scrub the coverings with a brush and hot water to remove size deposits, and it is also advisable to wash the other cylinders as well as the quetsch rolls and the size tub.

Proper insertion of the breaker, or split, rods at the delivery end is also important, as the yarn sheet from each beam should be separated. The warp is divided first into two halves, or sections, and then the yarn sheet from each section beam is divided as equally as possible below and above an imaginary center line. Fig. 3 shows a system which provides for a gradual separation. The system used in Fig. 4 is recommended where the space between the last drying cylinder and the delivery end is rather limited.

In the formation of the loom beam, the matter of building the yarn at the beam flanges is frequently troublesome. One reason for such trouble is improper setting of the beam flanges. These must be absolutely parallel to each other, otherwise high and low places will develop on the loom beam. Then, the proper dividing of the yarn ends in the zig-zag comb is also important so that the build-up of the edge material, or that yarn next to the flanges, is even with the warp body.

A suitable method for determining the proper entry of edge, or selvage, yarn in the comb is as follows: Assume that 10 section beams contain 75-den. yarn for the warp, then 10 ends would be placed in a comb dent and $10 \times 75 =$ 750 den. per dent. If 30 selvage, or end, yarns of 2/75 yarn with 12 turns per inch, the resulting counts of the plied yarn will equal approximately 152 den. Then, $750 \div 152 = 4.93$ ends per dent of selvage yarn. However, if there are 30 ends, then $30 \div 4.93 = 6.08$ dents.

Therefore, these 30 selvage ends are dropped 5 ends per dent for 6 dents, giving 760 den. per dent against the ground having 10 ends of 75-den. yarn equal to 750 den. per dent. The 10 den. difference being only 1.3% heavier than the body, may be neglected.

Increasing Cotton Card Speeds

To boost production results in higher yarn strength and improved appearance

An unexpected result obtained in several southern mills when card cylinder speeds were raised was an increase in yarn strength. This fact was reported briefly at the fall meeting of the South Carolina Division of the Southern Textile Association, by Professor Dunlap, who is Supervisor of the research being carried out by the STA and the Arkwrights, under sponsorship of the Textile Foundation (Textile World, January, 1942, page 96). A more detailed report of the tests and results obtained follows.

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By GEORGE H. DUNLAP

UNDER THE PRESENT EMERGENCY, cotton manufacturers have been considering all possible ways and means of increasing production without a sacrifice of quality. Since one recognized bottleneck has been the limited output of cards, one possibility suggested was the speeding up of the cards. In this connection there were two questions to be answered:

1. Can cards be operated efficiently at speeds greater than the commonly accepter maximum of 165 rpm.?

2. Can yarn be produced at these increased speeds without sacrifice of qaulity?

In an effort to answer the foregoing questions arrangements were made with fifteen different cotton mills, scattered over the southern states, to conduct comparative tests on card sylinder speeds.

In view of the considerable interest shown in the project, the following preliminary report, summarizing the results of card speed tests made in two of the fifteen mills, is issued at this time as a matter of information. These data are, of course, only indicative, and no conclusions can be drawn until the results of the tests being made in the other thirteen mills are also available for comparison and analysis.

In the two tests reported, the increased cylinder speeds were obtained by changing the size of the driving pulleys, which, in turn, caused a proportional increase in the speeds of the other parts of the card. The same card settings were used throughout the tests. The lap and sliver sizings, general organization, and waste data were reported by the two cooperating mills. The sliver and yarn data were supplied by the writer, who made the tests under standard conditions and on standard equipment in the testing laboratory of the Textile School of Clemson College. The yarn was graded against the yarn appearance standards as developed by the U. S. Agricultural Marketing Service and adopted by the American Society for Testing Materials.

Test conditions and organizational layout are summarized in Table I, and test results are given in Table II. Appearance of the yarn spun in each of the two mills before and after the increase in card speeds is shown in Figs.

TABLE I.—TEST CONDITIONS.

	Mill A		Mill B	
Cylinder speed	165 rpm.	192 rpm.	172 rpm.	196 rpm.
Staple of cotton	1-1/16 in.	1-1/16 in.	1-1/16 in.	1-1/16 in.
Grade of cotton	Western Mid.	Western Mid.	2/3 West. Md. 1/3 West. S. L. M.	2/3 West. Mid. 1/3 West. S. L. M.
Pickers:				
Rear beater	Buckley	Buckley	Buckley	Backley
Middle beater	2-blade	2-blade	2-blade	2-blade
Front beater	Kirschner	Kirschner	Kirschner	Kirschner
Cards:				
Rel. hum	57%	57%	51%	51%
Strip. schedule	3 per 8 hr.	3 per 8 hr.	3 per 8 hr.	3 per 8 hr.
Oz. lap fed	13.50	13.50	11.00	11.00
Gr. silver del	49.88	50.71	52.96	53.83
Lb. carded per hr	9.92	11.84	10.20	11.69
Model (year)	1928	1928	1900	1900
Age of clothing	7 yr.	7 yr.	5 yr.	5 yr.
Rpm. doffer	8	9.3	9.6	11
Rpm. lickerin	407	475	460	525
Fr. plate:				
Top	0.023	0.023	0.017	0.017
Bottom	0.023	0.023	0.022	0.022
Drawing:				
Type	regular	regular	regular	regular
Processes	2	2	2	2
Rpm. fr. roll:				
Breaker	319	219	290	290
Finisher	309	309	290	290
Top rolls	cork	cork	metallic	metallic
Roving:				
Processes:	1	1	2	2
Long-draft H.R.	3.00 H.R.	3.00 H.R.	.....	.....
Slubber H.R.	.....	.....	.80 H.R.	.80 H.R.
Intermed. H.R.	.....	.....	2.09 H.R.	2.09 H.R.
Spinning:				
Type	long draft	long draft	long draft	long draft
Top rolls	cork	cork	cork	cork
Doublings	2	2	1	1
Yarn count	31s	31s	30s	30s
Rpm. spindle	9,900	9,900	10,200	10,200
Rpm. fr. roll	122	122	136	136
Ring dia. (in.)	1.875	1.875	1.75	1.75

1a, 1b, 2a, and 2b. The grade of each yarn as compared with the aforementioned standards is shown in the last line of Table II.

It appears to be the consensus of textile manufacturers that the following factors to a large extent govern the feasibility of increasing card cylinder speed: (a) condition of the cylinder bearing, (b) condition of the clothing or fillet, and (c) amount of flow vibration. Other mill men believe that the card will operate efficiently at an increased speed provided the speed of the doffer comb is decreased. As a matter of general interest it might be stated that many of the mills cooperating in these tests have been running their card cylinders at increased speeds for more than three months and have experienced no mechanical difficulty in so doing.

TABLE II.—TEST RESULTS.

Card waste (%):				
Motes and fly	1.056	1.103	1.567	1.580
Cyl. and doffer strips	.905	.710	.888	.684
Flat strips	3.389	3.324	2.507	2.107
Total waste	5.350	5.137	4.962	4.371
Sliver variation (%):				
Av. max. var. per yd	10.83	9.88	11.66	10.88
Max. var. in 20 yd	20.00	21.11	25.55	25.55
Yarn count (av. of 100)	30.86	31.14	31.13	29.56
Strength (*lb.*):				
Skein (corrected)	54.50	59.29	61.55	64.14
Skein (actual)	54.77	59.02	59.32	65.10
Single strand	0.562	0.604	0.564	0.602
Stretch (%), s. str	7.62	7.52	7.79	7.49
Yarn appearance	B−	B+	C+	B+

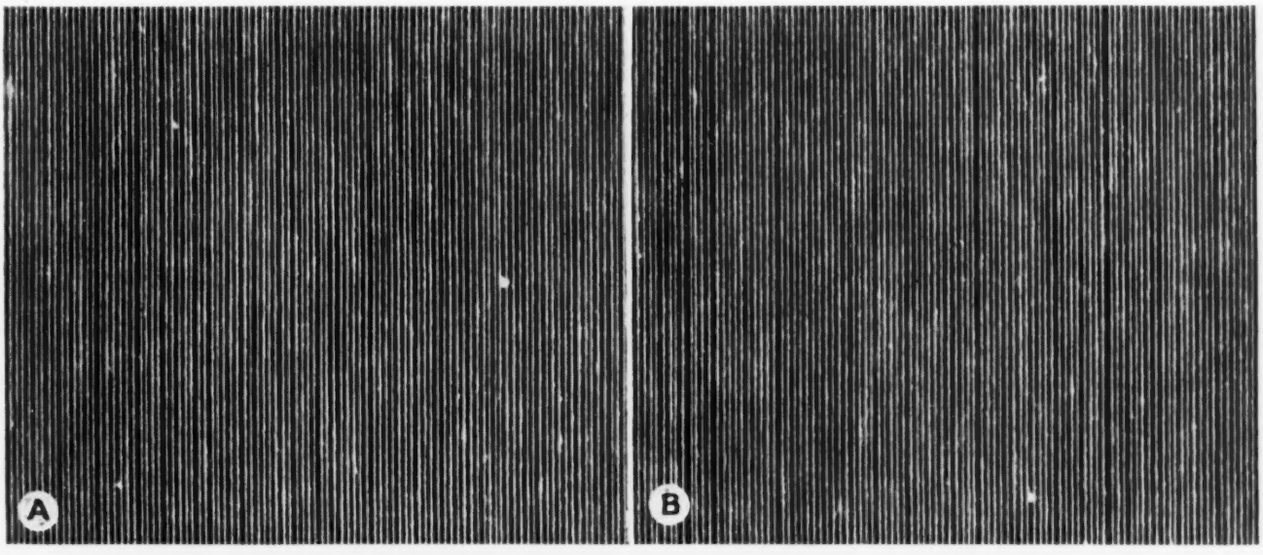

Fig. 1. Appearance of yarn spun in Mill A: *a*, at 165 rpm.; *b*, at 192 rpm.

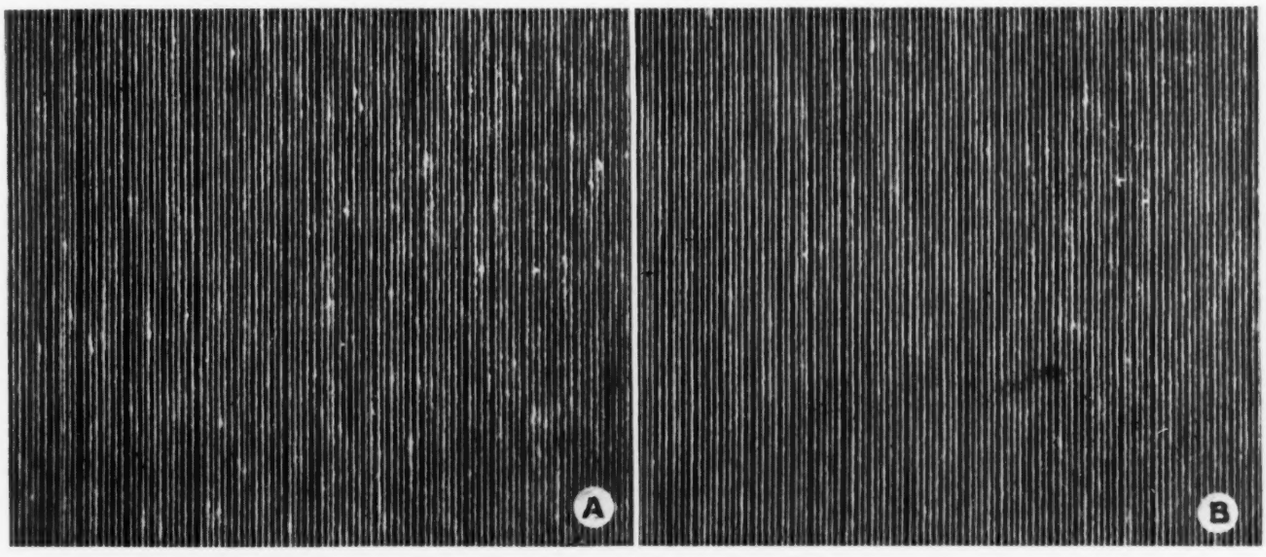

Fig. 2. Appearance of yarn spun in Mill B: *a*, at 172 rpm.; *b*, at 196 rpm.

Upkeep of Electrical Equipment

Planned maintenance program needed; care of motors under present conditions

The first installment of this article, which appeared in our March issue, discussed the necessity for a properly set up maintenance program for electrical equipment. This final installment discusses the care and lubrication of motors.

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By R. H. ROGERS
Industrial Engineering Dept.
General Electric Co.

MAINTENANCE of d-c. motors (and generators) has to do mostly with brushes and commutators. Regular inspection at stated intervals, say every week on particularly active motors and once a month on motors that are operated part time, will usually forestall serious trouble.

Brushes that are well worn down should be replaced. Spring tension should be adjusted as brushes wear down, since the tension is gradually reduced. Brushes should work freely in holders; an accumulation of carbon dust and grease may interfere with free movement.

If the brush-holder yoke has dragged off from the marked neutral position, sparking and bad operation will result. To correct such a condition loosen the holding device, shift back to the mark, and set up. Rapid wear of brushes indicates that a harder grade should be used. If there is singing or hissing at the commutator, apply Vaseline sparingly and wipe off thoroughly.

Sparking may be caused by a high bar, which may be set down with fibre and mallet. Then the clamping ring should be tightened. Low bar or flat will require grinding or turning the commutator until a surface is even.

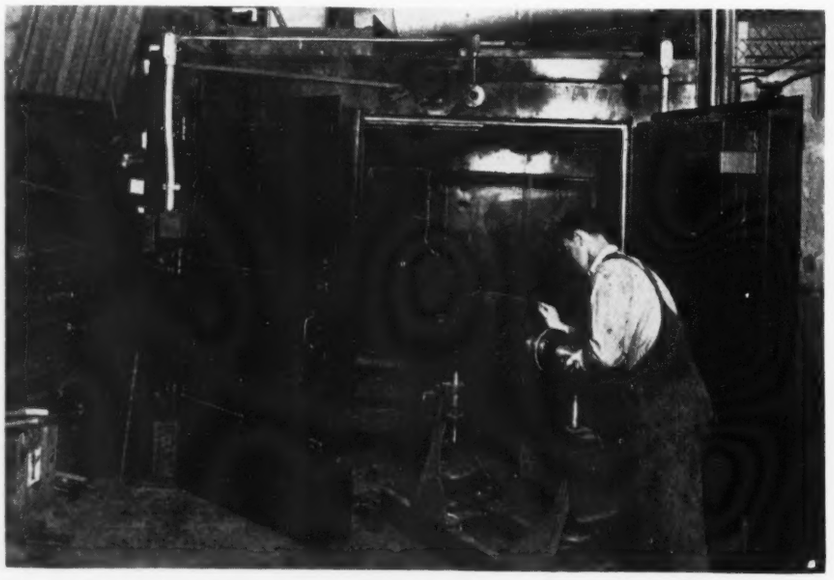
A rough commutator may be caused by brush trouble; smooth with sandpaper (not emery) and correct the brushes if they are at fault. High mica may cause sparking, in which event the mica should be undercut as it is probably harder than the bars. Copper particles may become imbedded between bars so as to partly short the armature coils. A thorough cleaning will overcome this trouble.

A short circuit in an armature will be indicated by excessive current, slow speed, overheating, and sparking. If not cleared by cleaning the commutator, test for an internal short to the other coil or ground. A shop repair job will be in order. An open circuit in the armature winding will be indicated by sparking which, however, is not conclusive evidence.

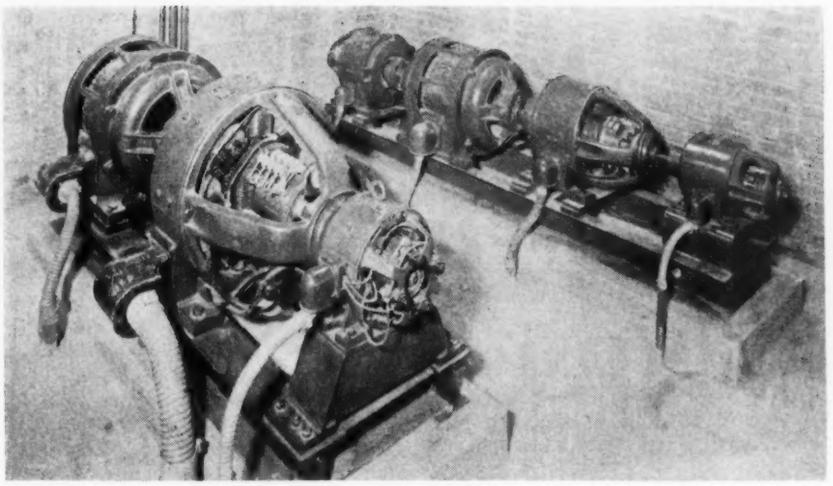
If the motor starts the wrong way, either the field circuit or the armature circuit has been reversed. The simpler cure is to reverse the field circuit. Too high speed indicates a weak field from poor connections or a short in a field winding. Clean the connections first. Check for a short to ground. If the trouble does not yield to treatment in the frame, remove the coil and repair it. Brushes being off neutral may be the cause of the high-speed operation. A short in the interpole field winding will cause sparking because the electrical neutral will be allowed to shift with load changes. Measure the resistance to ground and the resistance of each coil. The low resistance coil is the trouble maker.

BEARINGS. Sleeve bearings may overheat or wear rapidly because the oil ring is stuck, because there is too much belt tension, because the pulley or pinion is too small, because the shaft is bent, or because of poor belt joints or poor alignment. If it is a coupled job, disconnect the coupling, move the motor back, and note the angular alignment and offset if any. Check with thin paper. Reset the motor to correct alignment. End thrust may be all one way and may get worse as the motor and driven unit heat up. Check and adjust so that the shaft shoulders do not press against the end of the bearings. Run the belt as slack as can be allowed for reasonable starting duty. If reduced-voltage starting is used, be sure plenty of time is allowed before going to full voltage on flywheel loads.

A galled bearing will overheat and continue to get worse. When the new bearing is installed, the journal should be carefully dressed to equal new shaft conditions. Ball bearings are sometimes found to be overheating from excessive use of grease or grease that is too solid. Other causes of overheating are bent shaft, poor alignment, end thrust, or a broken ball. Test for alignment and end thrust, belt tension, and poor lubrication first. See that the bearing floats in its housing. If there is no im-



The textile industry is characterized by the number and variety of motor-generator sets used. Failure in such equipment shuts down a whole line of production; hence planned maintenance is highly essential



Periodic varnishing and baking of stators and rotors is good preventive maintenance practice. Prevalence of steam and vapors in textiile plants makes drying by heat an essential procedure

provement, replace with a new bearing. Keeping d-c. motors clean and making routine tests with instruments will go far toward keeping motors free from trouble.

A-C. MOTORS. Brush-shifting (BTA) adjustable-speed a-c. motors require the same brush, commutator, and bearing attention as d-c. motors. Squirrel-cage motors are the simplest of all electric motors and require the least maintenance.

Overheating is a common symptom, but before pulling the motor out, make sure that the driven machine is not at fault. Often motor heating is the first and perhaps the only signal that something has gone wrong in the machine. Failure of one phase after a motor is started will cause overheating. Stop the motor and attempt to restart it; if it refuses to start, it may have to go to the shop.

If motors are exposed to humid air, acid or alkali fumes, or chemicals, the stator windings should be treated at suitable intervals with insulating varnish.

Wound-rotor motors and synchronous motors require attention to brushes as covered under d-c. motors. Collector rings will need attention to keep the running surfaces true and smooth and to see that brush wear is evenly distributed. Dirt must not be allowed to accumulate about the rings. Synchronous motor fields are similar to those of d-c. motors, but symptoms of trouble are not so apparent. Frequent tests with portable instruments will indicate any incipient trouble. An open-field circuit will allow the motor to operate as an induction motor, it will not pull up to synchronous speed, and the motor will overheat badly. Stator windings should be cared for as outlined under squirrel-cage motors.

Wound-rotor motors also take the same stator care. The wound rotor is similar in its troubles to d-c. motor armatures and requires about the same care. Bearings are covered under other types of motors.

INDUSTRIAL CONTROL MAINTENANCE is divided between circuit troubles and device troubles. The control circuits should be studied in place and in elementary diagrams furnished, so that circuit trouble can be quickly located. Use of portable instruments is especially necessary in connection with this work. Permanent repairs may be made on the spot if material is at hand and the work is understood. If temporary makeshift repairs are made, a good, permanent job should be done at the first opportunity.

Industrial control equipment generally can be taken care of best by use of spare units which are reconditioned for substitution wherever needed. Detailed procedure is not needed for this kind of maintenance work. However, some trouble-shooting hints may prove useful.

A-c. and d-c. contactors and simple magnetic relays have much in common as to symptoms of trouble, possible causes, and lines of investigation:

1. A noisy magnet may be caused by a broken pole shader, dirt on the magnet, or faces out of true. Overvoltage, slamming, or a wrong coil may be the cause of a broken pole shader.

2. Coil failure usually is the result of moisture, bad atmosphere, overvoltage, too fast a cycle, or metallic dirt. Upon replacement, check for cause and correct it if possible.

3. An overheated blowout coil may be loose on the stands, the current may be too high for the coil, or the device is being operated too frequently.

4. Pitted and damaged arc-chutes come from interrupting too heavy induction loads, or from moisture, vibration, or rough handling.

5. Failure to pick up is most often due to low voltage. Other causes are open circuited or shorted coil, or excessive gap.

6. Failure to drop out indicates mechanical binding from bad adjustment or dirt. Trouble may be caused by welded tips, sticky magnet face, or loss of air gap.

7. Broken flexible shunts result from a large number of operations, corrosive conditions, or by getting in way of arcs.

8. Insulation failures. Look for moisture, corrosive agents, and metallic dirt. Otherwise check overheating, voltage surges, and short circuits.

LUBRICATION. Manufacturers furnish detailed instructions for the lubrication of their motors. These instructions should be available to the men who take care of motors, and, in general, the procedure should be followed.

Over-zealous lubrication of ball bearings, sleeve bearings with oil rings, and waste-packed bearings is wasteful of lubricant and time, harms the windings, may cause bearings to overheat, and is contrary to good housekeeping.

Waste-packed bearings will normally go six months between fillings, but thousands of them in the textile industry are filled to the brim every week. Ring-oiled sleeve bearings should be replenished with the motor stopped, otherwise too much oil may be used. Periodic cleaning of oil wells, say once a year, is in order. Oil rings should be checked weekly for free wheeling. Interior of motor should be inspected frequently to see if oil is likely to soak into insulations.

Ball bearings overheat if the grease is under pressure or if it is too hard. Modern ball bearings can be cleaned and recharged readily if instructions are followed. During regular inspections, grease grooves should be filled with fibrous high-temperature sealing grease, the purpose of which is to keep grease in the bearings and out of motors. After changing a ball bearing and after cleaning and re-greasing, a close check should be kept for an hour to see that the bearing is going to run cool.

Use recommended lubricants or lubricants of good quality. It is false economy to try to use cheap, inferior oils and greases in bearings.

Textile Standards in Wartime

And improved test methods discussed at meeting of Committee D13 in Providence

WAR-TIME STANDARDS FOR TEXTILES were considered from the viewpoint of the manufacturer and the consumer at the spring meeting of Committee D13 of the American Society for Testing Materials, held March 12 to 13, in Providence. Also discussed were new and improved tests, including those for determining resistance to mildew of Army fabrics, for evaluating black-out cloth, for measuring length and strength of cotton fibers, and for determining fiber content of part-wool fabrics. Another feature of the meeting was the presentation of two papers describing the application of A.S.T.M. methods for the manufacturing control of French spun yarn.

At a symposium on textile standards in war time sponsored by Sub-committee A-6 on household and garment fabrics, Herbert S. Schenker, textile consultant for OPA, stated that pressure for abrogation of the Wool Labeling Act is an unwise move. If, suddenly, the consuming public is informed, on the heels of a wool allocation order, which urges greater use of substitutes, that the act is being repealed, the obvious reaction would be that merchandise is going to be of such low quality that the manufacturer would dare not reveal its composition. This would be a much greater blow to morale than a frank explanation of existing conditions, giving the public full information about what is obtaining. Max Schuster, of L. Bamberger & Co., urged more protection for consumers through setting up of standards and predicted more mandatory labeling for consumer goods.

Progress in development of accelerated ageing tests for determining resistance to mildew and rotting of sand bag fabrics, camouflage cloth, tenting, tarpaulins, and other materials required by the Army for outdoor use was described at the meeting of sub-committee B-4 on bleaching, dyeing, and finishing. Also discussed at this session was the British standard test for evaluating the effectiveness of black-out cloth, and the proposed American Defense Emergency Standard for specification and descriptions of color.

Two tests are now being employed for determining the resistance of textile fabrics to micro-organisms—an accelerated mildew infection method and a soil-burial method. The latter is now being used for testing the resistance to rotting of sandbag fabrics. In this method, 10 samples, from each fabric measuring 3 x 6 in. are buried in a specially composted soil so that a 3½-length is buried. The rest of each sample is bent over and tamped slightly so that it lies flat on the surface of the soil.

The specimens are allowed to remain for a period of six weeks. During this period the soil is sprinkled with water twice a day. After removal from the soil, the specimens are rinsed to remove any adhering soil, dried at 100 to 105° C., and conditioned for tensile-strength testing in an atmosphere containing 65% r.h. at 21° C. The samples are then subjected to a standard tensile-strength test by the grab method, and 10 specimens which have not been buried are tested in the same way. The percentage loss in the average breaking strength of the specimens during the test shall not be greater than the loss of similar fabrics containing 0.09 oz. copper per sq. yd. in the form of naphthenate, the proportion of copper naphthenate in the fabric being not more than 1.0 oz. nor less than 0.8 oz. per sq. yd.

The following tests are suggested as a check upon the rate of decomposition in the standard soil burial test described above: (a) Specimens of untreated cotton osnaburg, weighing 7 oz. per sq. yd. should retain less than 10% of their original tensile strength after burial for 1 week. (b) Specimens of the same cotton osnaburg treated to contain 10% by weight of copper naphthenate (equivalent to 1% of copper), should retain from 60 to 90% of their original treated tensile strength after burial for 6 weeks. (c) Specimens of the same cotton osnaburg treated to contain 30% by weight of zinc naphthenate, should retain less than 10% of their original treated tensile strength after burial for 6 weeks.

USE OF THE FIBROGRAPH for determination of cotton-fiber length was described by Prof. K. L. Hertel of the University of Tennessee at a meeting of Sub-committee A1 on cotton. The Fibrograph is an optical instrument which scans the fiber sample by photo-electric means and traces a length-frequency distribution curve. Although the Fibrograph does not give absolute fiber length, the results obtained with it closely approximate those obtained by experienced cotton classers. For example, measurements made with the Fibrograph of ten varieties of cotton averaged 33.9 thirty-seconds of an inch, and were reported by a classer as averaging 33.6 thirty-seconds. Another paper, which was prepared by Professor Pressley, of the University of Arizona, described a new instrument and method for determining the strength of cotton fibers.

APPLICATION IN THE MILL of A.S.T.M. methods for determining raw wool shrinkage, fineness and fiber length of wool, and fineness of wool tops was outlined by Werner Von Bergen, of Forstman Woolen Co. The speaker also called attention to the laboratory method of determining wool shrinkage now in use by the U. S. Treasury Department; for this test a large number of samples are obtained with the aid of a motor driven boring device. Fred Noechel, of Botany Worsted Mills, described the way in which the A.S.T.M. methods of testing and tolerances for worsted yarns and for wool fabrics are being applied in manufacture of military fabrics.

Among the many other standards which were discussed or on which action was taken at various sub-committee meetings, were standards for cotton ducks; it was recommended that the Government standards for Army, wide, hose, and belt ducks be incorporated in the society's standards.

At the general session of Committee D13, Herbert J. Ball, of Lowell Textile Institute, was re-elected chairman; Fred S. Mapes, of General Electric Co., was elected first vice-chairman; A. Griffin Ashcroft, of Alexander Smith & Sons Carpet Co., was elected second vice-chairman; and W. H. Whitcomb, of the Rhode Island School of Design, was re-elected secretary for the 14th year.

The society will hold its annual convention in Atlantic City in June, the date to be announced later. Committee D13 will conduct its next meeting in New York, Oct. 14 to 16.

ANNUAL KNITTING SECTION

BLACK-OUT AT ATLANTIC CITY

THE BLACKOUT recently put into effect at Atlantic City and other coast resorts has a special symbolism for the knitting industry. For that industry ordered a black-out at Atlantic City weeks before the physical dim started. It canceled its 38th Annual Knitting Arts Exhibition scheduled to be held at the Auditorium there during the week of April 27.

That was not an easy decision to make. The knitting show has become, over the years, an annual event of first magnitude in knitting circles. This year, particularly, it was potentially important, because the exhibition was to desert its time-honored spot in Philadelphia and experiment with a new locale by the sea.

But war is war—and the Knitting Arts Exhibition is only one of its casualties. The knitting industry itself, as a matter of fact, was the first economic casualty of the war. Months before Pearl Harbor, one of its principal sources of raw material was cut off. Since then, it has been engaged in an heroic struggle to utilize substitute fibers, all of which themselves became increasingly scarce.

Knitting machinery manufacturers, too, found their own materials tied up by priorities, and were called upon to enter the production of war or allied equipment.

Under such circumstances, the 1942 Knitting Arts Exhibition just didn't fit into the war picture.

AS AN ARDENT SUPPORTER of textile exhibitions and conventions, TEXTILE WORLD is confident that this interruption of the annual rhythm of the Knitting Arts Exhibition is as temporary as is the interruption of so many of our peace-time pursuits. After the war, Knitting Week will become once again the great event it has been in the past, only more so.

Meanwhile, the function of this annual Knitting Section of TEXTILE WORLD becomes even more vital. In the pages that follow, we survey the field and point out the trends which would have been demonstrated on the floor of the Auditorium at Atlantic City.

For the duration, we pledge the resources of this publication to the conduct of a "Knitting Arts Exhibition in print."

HOWEVER THERE IS MORE INVOLVED than just this question of an exhibition. The knitting industry faces, as does practically all industry, a complete abandonment of "business as usual." During the process of defeating the enemy, markets built up over decades of effort will have to be sacrificed to the single job ahead.

During that interval, there will be a temptation to both mills and their suppliers to give up all promotional activities. That temptation must be resisted.

Manufacturers of knitting machinery, accessories and supplies, must realize that later on they will have to go back to their same customers. They should keep alive the prestige of their products; help mills to make the best of the equipment in place; and supply the best technical advice they have at their command. Here again, TEXTILE WORLD pledges its full support toward that end.

Similarly, manufacturers of hosiery, underwear, outerwear, and other knitted products, must perpetuate the reputation they have acquired among consumers. Promotion departments, sales-forces, advertising, must be continued and intensified. Those companies which disregard this warning will find their markets usurped by their more alert competitors.

After we get through taking the pants off Hitler and Hirohito, we will have a golden opportunity to put panties and stockings and sweaters on American women. While knit-goods manufacturers go all-out in the former strip-tease act, they can also plan to be among those companies which will later do it in reverse, for civilians.

Douglas G. Woolf

Since Last Year's Show

Knitting industry has undergone many changes due to increased Government call for its products, ban on civilian use of silk

THREE MAJOR FACTORS have influenced technical developments in the knitting industry during the last twelve months. These are: (1) the ban on use of silk and restrictions on use of rubber for civilian purposes; (2) the increased demand by the Government for knit goods; and (3) the combination of metal shortage, priorities, and conversion of a large part of the facilities of the knitting machine industry to war work.

Although all branches of the knitting industry have felt the effect of the ban on use of silk, manufacturing techniques have not been greatly disturbed other than in the full-fashioned hosiery division. In that division, the throwsters, the knitters, and the dyers have faced a constant succession of problems.

A year ago the full-fashioned hosiery industry had got into stride on the production of Nylon hosiery. The major difficulties which had been encountered at the start had been overcome. Knitters and dyers had become familiar with the properties of this fiber and had worked out fairly satisfactory techniques for handling it. Preboarding machines and other equipment designed especially for use with Nylon had made their appearance. Further improvements and refinements in knitting, dyeing, and finishing were gradually being worked out. Production of Nylon was being stepped up periodically, and it appeared that by the end of 1942 enough would be available to replace silk in all gages of 2- and 3-thread hosiery.

Then suddenly imports of silk were stopped; the industry was deprived of its major raw material. The supply of Nylon was not nearly large enough to satisfy all the needs of the full-fashioned knitters; and they were forced to turn to use of cotton and rayon. To make the remaining supply of thrown silk last as long as possible, it was used in combination with cotton and/or rayon. Nylon, too, began to be used in combination with other fibers. Now it appears that Nylon will be withdrawn from civilian use.

As a result of all this, the full-fashioned hosiery industry has been struggling frenziedly for the last several months to produce substitutes for silk and Nylon stockings which will be acceptable to the consumer. Of the many technical problems which are being encountered, the most difficult is to adapt rayon to use in full-fashioned hosiery. Already, a great deal has been accomplished in improvement of throwing, knitting, dyeing, and finishing procedures; but much more remains to be done toward development all-rayon and rayon-cotton stockings which are both serviceable and attractive. There is an urgent need for intensive industry-wide research on the problems involved in production of rayon hosiery, and only through such research can they be solved quickly. Among the factors which require study are: (1) soaking and sizing of rayon hosiery yarns; (2) counts and twists of yarn for legs, welt, and feet; (3) reinforcing yarns; (4) courses per inch and gage; (5) humidity and temperature conditions in throwing and knitting; and (5) dyeing and finishing operations.

The rationing of rubber is now being felt in various branches of the knitting industry—particularly the underwear division and the men's half-hose division, which in recent years have made increasing use of elastic yarns. Although one half-hose manufacturer recently announced the development of a knitting machine attachment for producting elastic tops without use of rubber yarn, as yet comparatively little has been done on the development of substitutes for elastic yarns made from rubber or latex. Here again intensive research is needed.

INCREASED DEMAND for knit goods for

Underwear Industry Was Prepared

THE UNDERWEAR INDUSTRY is now reaping the benefits of preparations for defense demands which were made two years ago. In the spring of 1940 before the Office of Production Management was established, the Institute, realizing problems would develop, established a War Committee to plan for Government production and eliminate obstacles which might prevent the industry meeting all Government requirements for underwear. A survey was made to determine the machine inventory, capacity and skills available, and work was done with the Philadelphia Quartermaster Depot in revising specifications to facilitate production. Mills which had supplied the Government's normal requirements of heavyweight underwear were utilized as schools to educate other mills to produce efficiently.

The industry has had no difficulty in taking care of Government needs insofar as production is concerned. Shortages of yarn have been a retarding factor and are becoming more so as the volume of Government purchases increases. With the cooperation of spinners we are working on this problem now and hope for a satisfactory solution.

The problem of skilled workers developed due to the fact that higher pay of defense industries attracted our experienced workers and made it necessary to employ more learners. To relieve this situation, in June 1941 an appeal was made to the Wage and Hour Administration for a liberalization of the industry's learner regulations. As yet no action has been taken.

ROY CHENEY
President The Underwear Institute

In anticipation of the purchase of large quantities of underwear for the armed forces during 1942 and 1943, plans have been laid for the conversion to Government production of those mills which are not now set up for this type of underwear.

If yarn is available to the underwear industry, it is expected there will be no difficulty in supplying the requirements of the Government and this same factor will influence the underwear available for civilian use.

military purposes during the last year has not resulted in any major changes in technique. Mills taking on Government work for the first time have, in some instances, had to make minor modifications in their manufacturing and processing methods in order to meet specifications. A large increase in the size of our armed forces will give rise to a still further increase in Government demand for textiles, and there is likely to be a shortage of some types of women fabrics. For some purposes—both military and civilian—knitted fabrics could easily be developed which would be satisfactory substitutes for woven materials. It appears that an investigation by individual manufacturers and trade associations of the possibility of developing such substitutes would be well worth while.

Shortage of metals, priorities, and conversion of a large part of the facilities of the knitting machine industry to war work have virtually put a stop to the introduction of new types of knitting equipment. At the 1941 Knitting Arts Exhibition only one entirely new knitting machine was exhibited—a multiple-feed sinker-top machine. Since then, there have been announced a 32-section full-fashioned hosiery machine, a high-speed warp knitting machine, and a seamless sleeve transfer knitting machine designed automatically to knit on cuffs.

SEVERAL NEW TYPES OF CHEMICALS —of which the following are typical—have been introduced for use in processing hosiery yarns, hosiery, and other types of knit goods. One new size for use on rayon hosiery yarns is designed to hold the twist of the yarn during knitting. A knitting oil for rayon is conveniently applied on coning machines to impart softness and lubricity to the yarn. Lubrication and tinting of rayon knitting yarn can be carried out at the same time by means of a combination conditioning oil and fugitive tint; the oil and the tints are also available separately. For use as a binder for high-twist rayon hosiery yarns, a synthetic resin is being offered by one manufacturer, who has also announced a lubricant and softener for application in throwing and knitting of rayon hosiery yarns. One type of methacrylate resin emulsion finishing agent brought out recently is recommended for imparting a snag-resistant and delustered finish to Nylon hosiery, and another type is recommended as a stiffening and bodying agent for knit goods. A compound for use in a cold process for weighting cotton underwear fabrics can be employed either to regain finishing losses or to obtain finished weights ranging from 1 to 8% over gray weight.

Hosiery Cooperates in War Effort

EARL CONSTANTINE
President National Assn. of Hosiery Mfrs.

THERE ARE TWO WAYS in which an industry can today cooperate in the war efforts of our country. One is to supply the Government with products needed in such efforts, and the other is to cooperate wholeheartedly with every undertaking of the Government which is intended to strengthen the war economy.

On the first score the hosiery industry can assist only by furnishing promptly whatever quantities and types of hosiery are needed by the Army and Navy and other services of the Government. Some industries can use their productive equipment for making war articles of a character which they were not making previously, but in our case, as far as we have been able to discover, our knitting equipment does not lend itself to anything other than hosiery. Since June, 1940, when the Defense Program was undertaken, we have supplied the Government for the Army and Navy and Marine Corps and other services, about 100 million pairs of socks. At this time the industry is bidding on another 15 million pairs. Part of the requirements are cotton, part mixtures of cotton and wool, and still others all-wool. The last includes so-called arctic socks, which reach high over the knee and are turned down over the knee to form a heavy cuff which keeps the cold from entering the leg. An unusual article is a ventilating sock made of hemp and used as a grate between the arctic sock and the boot.

In the line of cooperating with the Government's general efforts, our industry was one of the first to undertake a thorough industry-wide campaign to enlist the cooperation of all plants in the direction of scrapping all possible material and of salvaging all other materials which can be used. In addition we developed with the War Production Board a program for simplified packaging of our product, which, it is estimated, will save over seven million pounds of cardboard alone in one year, as well as other materials.

Deprived of two of our important and principal commodities, namely, silk and Nylon, our industry has readjusted itself to the use of rayon instead without a whimper and with splendid cooperation on the part of both the Government and the producers of rayon yarns. We are compelled to discontinue the use of rubberized yarns and the use of cellophane packaging after exhausting stocks on hand.

THE KNITTING INDUSTRIES, as a whole, have been abnormally active in the year which has passed since the last Knitting Arts Exhibition. Of the various branches, full-fashioned hosiery alone is now slowing down (due to the restricted raw material situation). In half-hose, underwear and knitted outerwear, mills have been romping along, with immense military orders in the first two groups leaving increasing small pickings for the civilian trade.

Despite the freezing of silk in August, production of full-fashioned hosiery in the calendar year of 1941 was almost up to the previous year, 41,818,722 doz. pr. having been produced compared with 41,870,428 doz. pr. in 1940. Half-hose production for 1941 amounted to 50,005,620 doz. pr., against 40,973,492 doz. pr. for 1940. A round figure for underwear production for 1941 is 33,000,000 doz. against 27,000,000 doz. in 1940. Army orders for hosiery, though difficult to total by calendar year instead of fiscal year, were running at a rate of about 7,000,000 doz. pr. for a 12-month period, and army underwear for a similar period probably exceeded 6,000,000 doz. This rate has rapidly increased since Pearl Harbor and will be further magnified in ensuing months. Outerwear began to take on Army business in volume relatively recently, the items now including sweaters, jerseys, knitted gloves, mufflers, wristlets and toques. This production will be a factor of consequence in the coming fall season and will render outerwear mills much less dependent upon the civilian trade.

Price movements in the three main branches of the knitting industry have, of course, been in harmony with the times, being on a steadily rising curve. Ceilings have been set on certain hosiery

items, but underwear and outerwear have been permitted to go their way since there was no evidence that mills or distributors were taking unfair advantage of the situation.

The minimum wage in the industry has been rising through the action of the Wage-Hour Law, and, in addition to that, there have been general wage advances which have raised the entire scale to new highs. The full-fashioned group were the first to go to the 40¢ per hour minimum early in the Wage-Hour Law's administration; the other branches have followed more gradually. Knitting labor in full-fashioned centers is plentiful because of mills running light while converting their lines to rayon or cotton. Labor in the other branches is swinging toward various degrees of scarcity as production speeds up and adjoining war industries with higher wage rates attract labor away from the mills.

The selling of knitted products will be a different matter in months ahead from what it used to be. In many instances there is room for real salesmanship in the necessary education and promotion to gain acceptance for new fibers and finishes. In other instances there is scant room for the usual type of salesmanship as goods are merely allotted to regular customers and no one new is taken on. However, good promotion and public relations are vital to hold the position already gained by branded lines. These activities are still proceeding on a de luxe scale in many quarters despite already effective limitations. Cellophane is out for packing; and envelopes, boxes and wraps are under limitations.

In hosiery the number of colors to a line of full-fashioned is limited to four, which a mill may select to suit itself. Special colors for individual customers have been abandoned. The net result is favorable to mills from the inventory angle, as it is no longer necessary to carry all of the normally large color line in stock. The retailer is not so fortunate since he may be confronted with four different colors from each supplier.

IN COMING MONTHS the problem will be to get out the maximum production of military goods while at the same time doing the best possible under the conditions for the civilian trade. The latter will involve the most problems due to scarcities of fibers, dyes, finishes, packaging, etc. Ingenuity of a high order will be called for. Exercise of this ingenuity should bring adequate compensation since many of the new combinations originally thought of as temporary will doubtless find a permanent place in the industry's output after the war. The swing toward synthetics, under way for some years, will of course be accelerated, and enhancement of wearing qualities by special finishes will prove a more important department of the business than heretofore. Therein lie new opportunities for knitters and suppliers which might never have been crystallized for many additional years in the relatively lazy pace of peacetime business. When the Knitting Arts Exhibition is held again in peacetimes the industry may expect to find products and processes now barely dreamed of.

After the war, knitting exhibitions such as shown above will be revived

Outerwear Fronts Sweeping Changes

SIDNEY S. KORZENIK
Executive Secretary
National Knitted Outerwear Association

THE KNITTED OUTERWEAR INDUSTRY stands on the threshhold of more sweeping changes than it has ever witnessed in its history. The demands that will be made upon it are of two kinds: (1) it will have to contribute increasing production to the needs of the armed forces; (2) it will also have to find the means to fill the civilian needs it has continuously served.

Both these demands will require the highest ingenuity and adaptive intelligence. For some industries, requirements for the war effort are precise and clearly defined and there only remains the problem of producing in quantity and with speed. In knitted outerwear, the course is not so clear. Articles are still in the process of development that will be used by the armed forces in substantial quantity. The most recent addition to this list is the knitted cap to be worn under a helmet. Other similar items of knitwear are under study.

As for civilian supply, the shortage of raw materials will be critical for those not engaged in Government production. Lack of essential materials is a sorely perplexing problem. But ingenuity in achieving novelty effects in the use of new materials and inventiveness in development of new items—factors which account so largely for the growth of the industry—will have to be relied upon to see it through this troubled period.

Why QM Rejects Knit Goods

Study of specifications, more careful follow-through will reduce rejections due to dropped stitches, holes, mends, and other faults

REJECTIONS OF KNIT GOODS by the Army, like those of woven fabrics described in the three previous articles of this series, are too high. Too large a proportion of the production of the industry's knitting branch has had to be turned down, for one cause or another. It is the purpose of this article, based on exclusive QM interviews, to point out the major causes of rejections, and thereby suggest how more knit goods for victory can reach their intended destination, rather than just taking a round trip from mill to QM and back again.

The fact that this country is now actually at war, and that our fighting forces must be expanded and equipped at any cost and with minimum delay, may cause Quartermaster inspection officials to ease somewhat their interpretation of what constitutes defective merchandise. But whether or not QM eases up on requirements, it has become the duty of every textile mill to tighten up all along the line, to assure that every yard of goods and every knitted product will give satisfactory service in the field of battle.

QM technicians complain that, generally speaking, there are two main reasons for knit goods rejection. No. 1, they state, is that producers don't believe the Government knows what it wants, don't familiarize themselves with specifications, don't keep up to date on changes in specifications, and, in some cases don't abide by the specifications.

No. 2 is that goods aren't properly inspected before they are shipped. This, QM states, may be due to use of operatives on inspection work who are not technically qualified for such positions, or it may be the result of sheer carelessness by otherwise qualified operatives. If the knitting industry would only remove these two conditions, it would considerably cut the percentage of round-trip shipments, thereby making its own operations less complicated and more profitable, and saving time and money for the government.

Segment of clothing issue to soldiers, showing some of the knitted items

Another trouble cause which QM lays in the lap of the knitters has to do with cutting of corners to prevent delinquency on orders, pushing operatives for speed beyond the point of good workmanship, taking chances in the hope everything will go O.K. Of course, the mills are—and the QM is well aware of the fact—caught between Army demands for speedy delivery on the one hand, and increasing difficulty in obtaining yarns and competent operatives on the other.

ON GARMENTS which are cut and sewn from knitted fabrics, troubles cited include poor cutting, poor sewing, holes, etc. Undershirts and drawers made of cotton-wool mixes frequently have to be rejected for dropped stitches, holes, mends, buttons improperly attached or of poor quality, short front opening, and wrong size markings, to list the major causes. On cotton summer undershirts many of the above defects are found, as are defects due to loose tension in sewing, etc.

Excessive shrinkage also gives trouble on some underwear items. This is believed to be due primarily to improper knitting and/or insufficient scouring.

On socks, workmanship defects are frequent. Other rejections result from use of yarn of the wrong size, wrong number of courses per inch, and the resultant wrong weight of socks. These defects are said to be traceable to not following the specifications or, in some cases, to attempts to chisel on specifications. Also causing rejections are holes in transfer, holes in toe or heel gore, holes in looping, socks knitted too tightly or too loose, improper boarding, etc. On cotton socks, QM technicians find such defects as dog ears, looping and transfer holes, feet knitted too tightly, mends, off-shade goods, improper boarding, mis-mating, improper scouring, unsatisfactory trimming of threads, and improper size markings. All these, they state, are grounds for rejection.

Knitted gloves, by and large, have not required much rejection. Defects which have been occasionally encountered are holes, short fingers, thumb knitted too far into palm, and the like.

Glove inspectors at Philadelphia QM Depot relax a moment to watch cameraman

Knit Goods For Military Purposes

Data on sweaters, mufflers, wristlets, anklets, caps, tubular cloth, lining cloth, undershirts, and drawers purchased by Army and Navy

SEVERAL TYPES of knitted products purchased by the Quartermaster Corps were described in the April, 1941, issue of TEXTILE WORLD. Since then the volume and variety of knit goods for military purposes have increased. A number of new specifications have been issued; others have been amended.

Following are abstracts of the new and amended specifications for the more important classes of knitted fabrics purchased by the Philadelphia Quartermaster Depot and by the Navy. Included also is additional information on yarn sizes and manufacturing details not given in the specifications. As only part of the data contained in the specifications is reproduced below, prospective bidders should obtain complete copies of applicable specifications. Likewise they should obtain copies of the latest invitations for bids, as in many instances the invitations contain exceptions to the printed specifications and/or alternate acceptable constructions.

CLOTH in knitted tubular form as produced on circular knitting machines is covered by Quartermaster Corps tentative specifications P.Q.D. 108, issued Dec. 3, 1941. Following are data extracted from this specification: All cloth shall be of first grade and free from holes, drop stitches, and oil spots. Worsted yarns should be used. The finished fabric should be olive drab in color.

Yarns—The yarns used in knitting tubular cloth should be of 2-ply worsted yarn. Long staple fleece or pulled wools are acceptable, but should not be lower in grade than 56's U. S. Standard.

Construction—Data as to cloth construction such as the number of wales, of courses, width of tubing, etc., are listed in Table I. The fabric is knitted with a 1x1-rib stitch and is composed entirely of 2-ply worsted yarn. Cloth lengths must be over 5 yd.

Finish—The only requirements for finishing are that the cloth be steamed and pressed, free of stains, and excessive moisture, and either rolled or folded in tubular form.

WRISTLETS AND ANKLETS are covered by tentative specification P.Q.D. 107, issued Dec. 3, 1941. These items can be manufactured by most hosiery manufacturers possessing ribbing machines. Wristlets and anklets are of only one grade and are of olive drab.

Yarn—Two-ply worsted yarn is acceptable if composed of long-staple fleece or pulled wools of grades above 50s U. S. Standard.

Fabric—These fabrics are seamless, being manufactured on a circular knitting machine. A 1x1-rib stitch should be employed and a tuck, or expansion, stitch taken at approximately 1½ in. from the cutting point. Wristlets should be constructed so they will measure 4½ in. in width at the tuck stitch, and where the lower end of the wristlet is folded, or tucked inside as required for packaging, the width should equal 2¾ in. In knitted form, the wristlet consists of a tuck stich 1½ in. at each end before it is folded so the entire length will be approximately 5 in.

Anklets are similar in construction to wristlets with the exception that the width at the tuck stitch is 5¾ in. and the width at the folded edge is 4 in. Then, the length of the folded anklet is 5½ in. Additional data covering wristlets and anklets are contained in Table I.

(Although specifications listed in Table I for wristlets and anklets are the minimum accepted, a suitable construction for wristlets giving approximately 14 wales and 23 courses is obtained on a 3½-in. machine using 84 needles, 8 needles per in., and 32/2 worsted yarn. Anklets having 14 wales and 23 courses may be produced on a 5-in. machine with about 126 needles, 8 needles to the inch, and employing 32/2 worsted yarn.)

CAPS knitted of worsted yarns are covered by tentative specification P.Q.D. 87A. Caps as covered by this specification contain an inserted visor. Three different sizes are procured: small, medium, and large.

Yarn is of 2-ply worsted spun from either fleece or pulled wool of grade 50s or better. All yarn shall be olive drab and possess good fastness to laundering, perspiration, weathering, and crocking.

Construction—Caps of different sizes are constructed by varying the number of needles and regulating the flat width of the tubular knit fabric. Ordinarily, a circular knitting machine approximately 7 in. in diameter and employing a half-cardigan stitch is suitable. Other data appear in Table I.

MUFFLERS, as covered by U. S. Army specification No. 8-99A, require the use of woolen yarns knitted in such a manner as to produce a fabric that may be brushed easily.

Yarn—Wool of long staple, either fleece or pulled, and of 56s U. S Standard grade or better shall be spun and formed into a 2-ply yarn suitable for knitting mufflers. Stock-dyed wool can be used or the yarns may be dyed.

Knitting—A flat knitting machine should be used, employing two yarn ends, both of 2-ply. The stitch should be 1x1-rib with a well defined selvage on either side. (Mufflers may be knit on a flat machine having 72 needles per plate.)

Finish—Muffler fabric should be olive drab in color and dyed with chrome dyes, either in the piece form, yarn, or stock. Finishing operations consist of brushing, or napping, so as to produce a long, thick nap.

UNDERSHIRTS AND DRAWERS of knit wool are covered by tentative specifications P.Q.D. 73-A and P.Q.D. 74-A, respectively, issued in December, 1941, and replacing P.Q.D. 73 and P.Q.D. 74. The most important changes are in regard to the yarns and their wool content,—the present specifications stipulating two classes of fabrics, 25% wool and 50% wool.

Yarns—The yarn shall be cotton-wool merino mix, spun by either the French, the woolen, or the cotton system from a good grade of cotton, and a strong staple fleece or pulled wool not lower in grade than 60s.

Class A—Yarn for this class shall contain not less than 50% wool in the finished undershirt or drawer.

Class B—The yarns of this class shall contain not less than 25% wool.

Fabric—A flat stitch shall be used for Type I undershirts and drawers produced on flat knitting machines, and a 1x1-rib stitch used on circular machines for Type II fabrics. Class B fabrics are made from a merino cotton-wool yarn and an all-cotton yarn. The fabric shall be knit so that one course shall be merino yarn and the following course cotton yarn. Practically all other specifications for undershirts and drawers

listed in TEXTILE WORLD, April, 1941, issue, apply.

CLOTH, LINING, 26-oz., olive drab, is covered by specification P.Q.D. 122A, issued Jan. 21, 1942.

Yarn—The blend from which the yarn is spun shall be composed of 100% reprocessed wool not lower in grade than 50s U. S. Standard. There shall not be more than 5% of fiber other than wool in the mixture. The yarns shall be spun on the woolen system into a single yarn.

Construction—The finished width of the cloth exclusive of selvage shall be 54 in., and the minimum weight based on a linear yard of 54 in. shall be 26 oz. The breaking strength combined in the direction of the wales and courses shall not be less than 100 lb.

Finish—Cloth shall be scoured, fulled, free from foreign vegetable matter—carbonized if necessary. The face only should be sheared and well pressed. Unless specified, the cloth shall be in continuous rolls of not less than 50 yd.

SWEATERS are required in olive drab in turtle neck, vee neck, and crew neck, each of the pullover type. Also, nurses' blue wool sweaters of the coat-style are required.

Pullover types of olive drab are covered by tentative specification P.Q.D. 111-A and are divided in the following types and classes:

Type I. Turtle neck pullover, with sleeves.

Type II. Vee neck, pullover, with sleeves.

Class A. Half cardigan.

Class B. Shaker Knit.

(A suggested construction for sweaters of Type I and II consists of using 3 ends of 32/2 worsted for the body, and 2 ends of 32/2 for the turtle neck. The V-neck border may consist of 3-ends of 20/2 produced on a circular machine of approximately 2-in. diameter containing 18 needles. That is, 3-ends of 32/2 should be used in all feeds, unless the feeds in knitting the skirt are equalized; this applies also to the knitting of sleeves and cuffs if they are to have a smooth, even appearance.

Sweaters of class B type may be produced with the following specifications: 9-ends of 32/2 worsted used for the body, the skirt and cuff may be formed on a 2½-cut Jumbo flat machine, and the neck-band made on a 2½-in. circular machine with 15 needles.

Circular knit, half-cardigan with rack at shoulders and bottom, it is stated, should be knitted on machines which are equipped with facilities for racking, such as Leighton, Stafford & Holt, or Tompkins sweater machines. As sweaters are required in various sizes, the number of needles required on a circular machine may be determined as follows: Sweater width x wales per in. x 2 = total needles. Then, total needles ÷ needles per in. = cir. of cyl.)

Type III. Crew neck, pullover, sleeveless.

Yarn—Yarn for knitting the sweaters shall be made from sound, strong, staple fleece or pulled wools not lower in grade than 50s U. S. Standard. Wool shall be well carded, combed, spun, and twisted into two-ply worsted yarn. The yarn shall be chrome dyed an approved shade of olive drab.

COAT-STYLE NURSES SWEATERS, blue, are covered by U. S. Army Specification 8-121, issued May 16, 1941.

Yarns—The knitting yarn is composed of strong staple fleece or pulled wool not lower in grade than 50s U. S. Standard. The yarn shall be of 2-ply and chrome-dyed blue. Practically all data concerning fabric construction is given in Table II.

CAPS, used by those on watch, are covered in Navy Department Specification 73C3a.

Yarn—Fleece or pulled wools of not lower than 56s grade should be used in producing 2- or 3-ply yarn.

Construction—Caps shall be knitted circular, or flat, cardigan stitch, containing 6 or 7 ribs to the inch and 12 or 13 stitches. They shall be conical in shape and a full 11 in. in length when finished.

Finish—The finished cap shall be a full 11 in. in length and 8¼ to 8¾ in. wide at the bottom. Each shall weigh not less than 3½ nor more than 4 oz. Color shall be dark blue and either stock or yarn dyed.

Types of knit goods which have been described in earlier issues of TEXTILE WORLD are as follows: Drawers—F.S. JJ-D-653, Apr. '41; Gloves, woolen—Army 8-60A, June '41; Lining, 22½-oz.—Army 8-118, Oct. '40; Socks—F.S. JJ-S-581a, Apr. '41; Undershirts—Army 6-233B, Oct. '40; Undershirts—F.S. JJ-U-517, Apr. '41.

Table I. Data on knitted cloth, wristlets, anklets, caps, and mufflers

Article	*Type Machine*	*Wales Per Inch*	*Courses Per Inch*	*Width Inches*	*Length Inches*	*Weight*	*Needles*
Cloth	Circular	12	18	18 to 30	.....	13 to 14 oz. per sq. yd.	.....
Wristlets	Circular	12	20	2¾ folded 4½ open	5	12 oz. per doz.	.....
Anklets	Circular	12	20	4 folded 5¾ open	5½	20 oz. per doz.	.....
Caps	Flat	....	.....	.....	.....	.....	.....
Small	.....	7	15	7¾ ± ¼	.....	.....	132
Medium	.....	7	15	8 ± ¼	.....	.....	140
Large	.....	7	15	8¼ ± ¼	.....	.....	148
Mufflers	Flat	6	11	12	64	8.5 oz.	.....

Table II. Knit Sweater Data

	Type Class	*Yarn*	*Ends*			*Wales*	*Courses*	*Inches*		*Stitch*
			Tot. No.	*Face*	*Back*			*Length*	*Width*	
Sweater, Olive Drab	I									
Body	I	2-ply	5–6	3	2–3	5	10	....	....	½ Cardigan
Turtle Neck	I	"	2	..	...	10	18	10	7	1x1 Rib
Skirt	I	"	3	..	...	6	12	4½	....	1x1 Rib
Cuff	I	"	3	..	...	6	12	4½	3½	1x1 Rib
Sweater, Olive Drab										
Body	II-A	2-ply	5–6	3	2–3	5	10	....	....	½ Cardigan
Body	II-B	"	9	..	...	4	6	....	....	Shaker
Cuffs	II-B	"	9	..	...	3	6	5	....	1x1 Rib
Neck Band	II-A	"	3	..	...	10	12	....	1¾	1x1 Rib
Neck Band	II-B	"	8	..	...	4½	6	....	1¾	Shaker
Sweater, Olive Drab										
Body	III	2-ply	3	..	...	5	10	....	....	½ Cardigan
(Optional)	III	"	3	..	...	6	10	....	....	Jersey
Skirt	III	"	2	..	...	8	14	....	....	½ Cardigan
(Optional)	III	"	3	..	...	5	12	....	3¾	Jersey
Sweater, blue										
Body	...	2/30	4	2	2	5	..	....	....	½ Cardigan
(Optional)	...	2/20	3	2	1	5	..	....	....	½ Cardigan

Advice to Full-Fashioned Knitters

Well-known authority on knitting rayon and cotton hosiery gives information on substitute yarn problems and adapting of machines

This is the first of a short series of articles analyzing the possibilities of substitute yarns for full-fashioned hosiery knitting and discussing technical problems which must be met and overcome. Mr. Miller is an authority who needs no introduction. He is a knitting machinery inventor and expert, and is author of the standard books "Principles of Knitting," and "Knitting Full-fashioned Hosiery, both of which appeared serially in TEXTILE WORLD

By MAX C. MILLER, M. E.
Knitting Engineer, Manville, R. I.

In changing over to rayon and cotton, the knitter faces new problems.

THE FULL-FASHIONED HOSIERY INDUSTRY knew, when we declared an embargo against Japan last summer, that it might have to produce hosiery from yarns other than silk, but there was the hope that the embargo would be only temporary and that silk would be available again before a real shortage occurred. Since Japan has become a belligerent, any idea that the industry will soon get silk again is definitely out of the question. Also, many in the industry thought they could switch to Nylon and that greatly increased quantities of Nylon or some similar synthetic yarn would be forthcoming. But because of the many war uses to which Nylon can be put, the fact that new Nylon plants cannot be built for lack of machinery, and that no similar yarns are available, this idea also has been shelved. This is true, but to a lesser extent, of high-grade hosiery-type rayon yarns.

So the entire industry now knows that it must definitely produce full-fashioned hosiery of rayon and cotton, preferably of a quality not required in the war effort, or required only to a limited extent. It also knows that only a limited part of the hosiery demands can now, and probably for some time in the future, be made of Nylon or similar thermoplastic yarns.

Fortunately, existing full-fashioned hosiery machines can be used to knit rayon and cotton. In fact, prior to the first World War a major portion of the hosiery made was cotton, but since that time a number of factors have been introduced that were not in evidence previously. The first of these differences is the relatively fine-gage machines that now must be used, because they are all the industry has. As an example, the most common gages today are 42 and 45, whereas those most common before the first World War were from 33 to 39. The second difference is the higher speeds at which present-day machinery is operated; and third, the consumer has been educated to want transparent, sheer hosiery. The first of these differences—machine gage—cannot be altered. Machine speeds, of course, can be reduced, but only at the expense of increased production costs. And, theoretically, consumers can be educated to use relatively opaque, heavy-appearing hosiery. However, the mills that come nearest to producing hosiery comparable in fineness and appearance to silk hosiery will most nearly meet consumers' demand. The writer personally believes that it is practical to reach the desired goal with rayon, especially cuprammonium rayon, although much can be done to improve the appearance of other rayon and cotton hosiery.

If it were possible to get fine French lisle yarns, the problem confronting the industry would be largely solved, as such yarns when made into hosiery always have competed advantageously with the best silk hosiery. Preventing the use of French lisle, at least for some time to come, are the facts that it probably would be necessary to use two ends of about 300/1 cotton to get a yarn fine enough to compare in fineness with 4-thread silk; that to spin such fine yarn requires cotton of a grade that is not grown in quantities in this country, and that we do not have much machinery of the type necessary to spin

the yarn. Additionally, of course, the cost of such fine lisle yarn would be quite prohibitive, especially with our labor costs. Although costs could be considerably reduced if the yarns could be ring-spun, there are too many other factors involved to permit us to contemplate the use of fine lisle to replace silk. This is true even though such yarn is very strong and so can be knit nicely on full-fashioned machines, and though fine lisle hosiery will greatly outwear comparable silk hosiery and, if anything, has a better appearance.

We must accept the fact that it is impossible to produce sheer hosiery with ordinary mercerized or similar yarns; first, because these yarns cannot be spun fine enough, and if they could be they are not inherently strong enough. The only way the writer can see how such yarns can be used to produce readily salable hosiery is to produce novel effects, such as all-over or partial mesh or other designs to replace the effect of sheerness. Then again, the weakness of mercerized yarn must be considered, especially when producing relatively open-mesh hosiery. Although loosely knit mesh hosiery can be produced of weak yarn, such hosiery is not at all desirable.

This leaves us with the problem of producing full-fashioned hosiery with rayon. To produce with such yarns a product that is most nearly comparable to sheer silk hosiery, it is necessary to have a clear understanding of the knitting process as practiced on available Cotton-type full-fashioned hosiery machines. It must always be remembered that as soon as we get away from using silk, lisle, or Nylon, we are forced to use yarns that are not nearly so strong; and yarn-strength is what has made possible the development of modern sheer full-fashioned hosiery.

It must not be assumed that full-fashioned machines cannot knit weak yarns, but it is a fact that these machines cannot knit so fine mesh with weak yarn as with strong yarns. This difference in mesh size greatly affects the appearance of the fabric. Large mesh coarsens the appearance of the fabric, because large loops are much more likely to vary in their conformation, with resultant irregular appearance of the wales.

THE MAJOR PURPOSE of this series of articles is to show what machine additions and modifications can be made to permit the formation of small, even-appearing fabric loops with relatively weak yarns. To make this clear, it is necessary for the reader to know what the contributing factors are to the production of fine, evenly looped and waled fabrics. An exact knowledge of the details of machine construction also will be advantageous. Such details are given in the author's book, "Knitting Full-Fashioned Hosiery," published by McGraw-Hill Book Co.

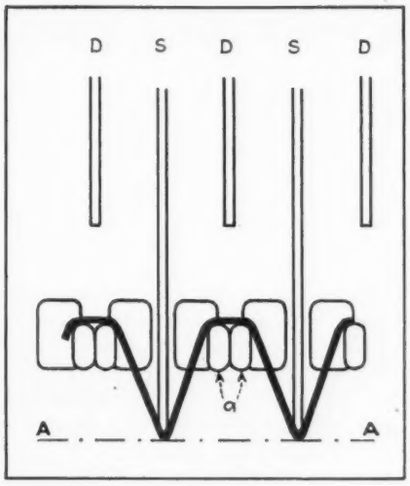


Fig. 1. Yarn for two loops is Coutered around each pair of needles

The Cotton-type flat machine, universally used to produce full-fashioned hosiery, has a number of basic features of construction and operation that are detrimental to the easy production of fine, even, small-mesh hosiery. Although most of these objectionable mechanical features can be circumvented if the yarns used are strong enough, the machines as now constructed do not lend themselves to the easy production of such desirable fabrics with weak yarns. A major objectionable feature of the machine is that yarn is kinked—that is, Couliered—only around each pair of needles. Thus, the yarn required for two loops—two half and one complete sinker wales, and two needle wales—is kinked, and alternate dividers re-measure and kink the yarn required for each individual needle wale and half sinker wale on each side thereof. At the end of the Coulier, the yarn and knitting elements have assumed the position shown in Fig. 1, which is an enlarged diagrammatic plan view of a few of the elements and the yarn. Sinkers that successively kink and Coulier the yarn are designated by the letter *S*, and dividers are marked *D*. Because sinkers kink the yarn around pairs of needles, each needle of a pair is flexed so that it practically contacts the other, as shown at *a*, Fig. 1.

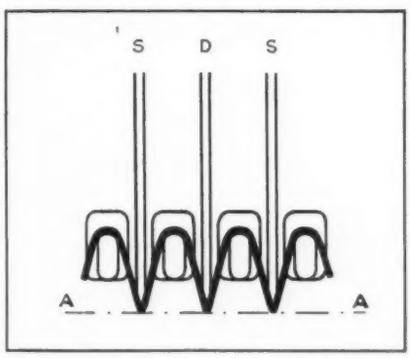


Fig. 2. Dividers spread pairs of needles, and sinkers move back-ward to give yarn to dividers

This disaligning of the needles into pairs is corrected at the divide, as shown in Fig. 2. Sinkers and dividers are both projected forward a like amount, and the line *A—A* indicates the forward projection of these elements. The needles must come forward as the dividers come forward, in order to give yarn to the dividers as they are simultaneously projected between the pairs of needles, as shown in Fig. 2.

The timing and the degree of divide movement of the needles are of extreme importance if an equal amount of yarn is to be kinked around each individual needle after the divide. To assure an even kinking of the yarn at the divide, the timing of the needle-divide movement in relation to the divider projection must be such as to give yarn to the dividers only as fast as they can take it up. For best results, it is essential that the kink formed in the yarn by the sinkers be not lost by reason of the needles moving forward too early in relation to the dividers. Sinker kinks may slip sideways in relation to the sinkers and so vary the amount of yarn in some of the wales.

Nor should the needles come forward too late, as this causes an over-tensioning of the Couliered yarn, with a resultant undue flexing of the relatively delicate needles. Although a slightly late forward movement of the needles at the divide is better than a delay in this motion, any undue forward flexing of the needles by the yarn may, at certain needles, produce vertical streaks in the fabric. The temper of all needles is not the same, and soft needles naturally flex more readily than stiffer ones.

On machines intended to use weak yarns, the first thing to be done is to see that the relative movement of the dividers and the needle-divide motion is correct in some one given stitch, preferably for the tightest stitch that the machine will be called upon to knit. It is difficult to check the exact timing and degree of relative movement of needles and dividers, especially as the correct relationship must be maintained through-

(*Continued on page* 95)

Dyer of Rayon Hosiery

Must have cooperation of throwster and knitter if he is to obtain a good boil-off, even dyeing, and the best results in finishing.

By VICTOR A. SCHIFFER

IN OUR FAST-CHANGING WAR-WORLD, the hosiery industry, as we all know too well, had first to abandon its No. 1 raw material, silk, and now, as this is being written, faces the immediate prospect of losing its No. 1 "White Hope," Nylon. The industry will then have left, for all practical purposes, an old and trustworthy standby, cotton, and a comparatively new, especially to full-fashioned hosiery, and much under-developed group, rayon. Cotton, although important and bound to develop further, does not seem to present so many problems as do the rayons, two of which, cuprammonium and viscose, are finding wide use in the full-fashioned division. This discussion, therefore, will be limited to these two fibers. And because these rayon fibers are comparatively new to the full-fashioned industry let us seek out the new problems the dyer and finisher will have to tackle and ways in which throwster and knitter can help keep the industry at its present high level.

When a batch of gray goods is rolled into the dyehouse, the dyer expects, and has the right to, that those goods are in the best possible condition they can be for him to do his job. It often seems that the dyer's most important task, or at least the one causing him the most grief, is the scour. For this reason, and because a clean scour or boil-off is essential, the dyer is much concerned with the materials added to the fibers by the throwster and the knitter.

The type of oil applied by the throwster has often been subject to criticism by the hosiery dyer in the past, because some of these oils have caused trouble in scouring and dyeing. With rayon coming into increased use, the throwster must be even more careful in his selection of an oil if he wants to give the dyer an even break.

A GOOD THROWING OIL is first and always one which will not oxidize or resinify. Yarns containing oxidized or resinified oils will not scour out cleanly, will not dye to shade, and will cause a weakness in the fibers—all of which are grieving to a dyer. Second, the oil should be of a type easily emulsified in water. This may seem like a repetition, but some oils chemically stabilized against oxidation and resinification may be difficult to emulsify. Rayon has the property of taking a tenacious hold on oils, and an oil easily removed from silk, for example, may prove difficult to scour out when applied to rayon. If the goods contain an oil of this nature, the time required to scour and dye is necessarily increased—a practice which usually leads to a higher percentage of seconds. Other undesirable consequences are, of course, increased costs for the dyehouse—labor, as well as processing materials.

The third important property required in throwing oil is good power of penetration. As in the case of silk soaking, the throwing oil used on rayon should have this property, especially where the yarn is to be given a high twist. Indirectly, this is important to the dyer and finisher, because a properly lubricated yarn makes for good throwing and knitting.

The knitter's choice of oil used as needle oil, or in the trough for lubrication of the yarn, should also receive careful consideration. Not only should the knitter check on the points discussed above concerning throwing oil, but, in addition, he should bear in mind the effect these oils may have on his expensive and possibly irreplaceable machinery. The machinery factor is of importance to the dyer and finisher, not only because good knitting makes his job easier, but also because deteriorated metals make his job a great deal more difficult. Copper, steel, or other metal particles carried on to rayon are likely to cause weak spots due to their oxidation, and are almost certain to run up the production of seconds and thirds due to spots on the finished goods. Use of all other materials, as well as oils, should get consideration from that angle wherever used on knitting machines or other valuable equipment.

The use of needle oils by the knitter brings up a most important point to be noted by those accustomed to running silk and Nylon. Most of the needle oils used on silk and Nylon contain large quantities of straight (unsulphonated) mineral oil. These oils have, in the past, given the dyer a little trouble in the boil-off bath, because of their high resistance to emulsification and their tendency to oxidize, particularly when the single- or split-bath method was employed in the dyehouse. With rayon, the task of scouring out these oils completely is many times more difficult and troublesome because raw mineral oil and rayon have a keen liking for one another.

NEEDLE OILS, especially of the cheaper grade, often contain animal and vegetable oils of highly oxidizable nature, and, for reasons already discussed, these inferior oils should be avoided. In order to cope with this problem, many knitters have changed over from their conventional needle oils to oils used by the throwster.

The question of needle oil has been stressed intentionally because of the condition encountered when the knitter changes over to running rayon entirely. The knitter—realizing the probable increase in wear and tear on his needles, sinkers, and dividers, and realizing also the need of a well-lubricated yarn in order to secure a good clean stitch—will be likely to use his needle oil liberally. Under these circumstances, it is readily understood why the knitter's choice of a needle oil has become more important to himself, as well as to the dyer and finisher.

Getting back to the throwster, in light of what has been discussed above, it becomes obvious that the choice of a sizing material, if one is used, should be made carefully. Many of the sizes used to date are of the gelatin type, and these are rarely a source of trouble to the dyer in scouring. Other types are, of course, used and it is likely that for many months, and perhaps years, there will be a continuous parade of new sizes for rayon hosiery yarns. It is important that the dyer be informed whenever a size is used which will require special attention in the scour bath.

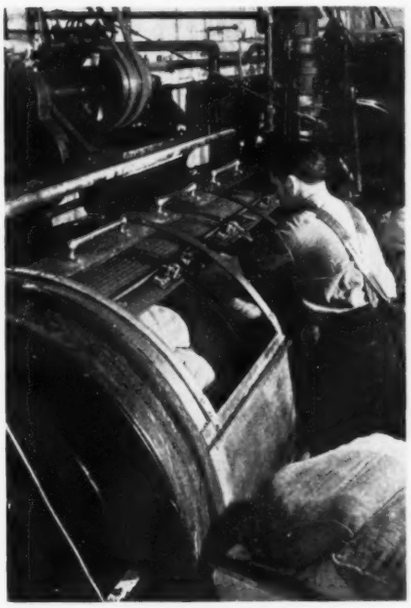
Improper selection and use of tints on rayon is another source of worry for the dyer, which can be avoided by cooperation from the throwster and knitter. Rayon tints are often fugitive only to a certain point, after which they may be either difficult or impossible to scour out, using normal procedure. In hosiery, where light shades are frequent, a tint that is not easily and completely removed is troublesome. The knitter, who occasionally uses tints, should also

be careful in his selection. Likewise, the knitter should check with the dyer concerning the crayons used in his grey goods-inspection department. Markers used on silk and Nylon may not be as fugitive on rayon.

In addition to the oil, size, and tint added to the yarns by the throwster and the knitter, there is always a certain amount of dirt that finds its way into the yarn. One of the conditions that should always be insisted upon in a throwing plant or knitting mill is cleanliness. If the management has been insistent on cleanliness while running silk and Nylon, the vigilance should be increased in the running of rayon. A demonstration to operators new to handling rayon of how rapidly all grease and machine oil spots spread, and how difficult these grease and oil spots are to remove from rayon, would be a worth-while investment of time. Other stains and soils which may be picked up by the yarn during its course through the throwing and knitting operations are to be avoided as much as conditions can be altered to permit. No matter what these soils and stains may consist of, it is certain that they will be the cause of some damage, whether great or small. The most dangerous of these miscellaneous stains are those containing metallic particles picked up from machine parts, the effect of which in the scouring bath has already been discussed.

APPLICATION OF DYES—a simple thing in itself—can also be made complicated by faulty procedure in the throwing and knitting mill—faulty from the viewpoint of the dyer. Chief among difficulties traceable to these sources is uneven dyeing. Not all uneven dyeing is caused by improper handling in the throwing or knitting mill. In some instances, for example, the yarn may not be uniform when it reaches the throwster, due to difficulties experienced by the rayon yarn producer. The two principal causes for uneven dyeing, as far as the throwster and knitter are liable, are uneven tension and mixed lots of yarn.

Each lot of rayon should always be kept separate from any other lot, whether or not the lots are from the same yarn producer. Rarely is one lot of rayon like any other lot in all its properties, and its dyeing properties are no exception. For this reason, two-tone, barré, and other mis-match effects in hosiery can be expected unless the throwster keeps his lots separated and passes the information on to the knitter so that he does not mix lots on his machines.



Use of rayon in full-fashioned hosiery has brought new problems to the dyer

More difficult to guard against is uneven tension. Whenever this condition exists, there is bound to be unevenness in dyeing. The phenomenon of light and heavy places in dyed rayon yarn caused by differences in tension applied is quite generally recognized. These variations in tension may occur during any of the operations, but there are several places where they are more likely to take place due to carelessness. If the yarn is to be sized, it is of the utmost importance that the size be applied uniformly.

If the size, which is being used, is not uniform, the variation in elongation between the covered and uncovered spots will produce the effect of uneven tension. Among other precautions that should be observed in connection with the sizing operation one deals with the drying following the sizing. The writer recommends that the yarn be bone-dried and then given sufficient time to recondition to 11% moisture before winding. If the yarn is run too wet, the consequences are often serious. There may be considerable permanent stretch and damage; also, excessive breaks due to loss of at least one-third of its dry (conditioned) strength. The stretched yarn will not dye to the same depth as the regular yarn, and will be weaker than the regular yarn.

Because of its effect on tension, one of the essentials for successful rayon throwing is proper temperature and relative humidity. These factors are important because of the high degree to which rayon is sensitive to them. Maintenance of a relative humidity of between 55 and 60% and a temperature of between 65 and 72° F. is considered good practice.

Good winding is important. In the winding room, the swifts should be adjusted frequently to make certain that a reasonably uniform tension is being applied at all times—beginning, middle, or end of skein or bobbin.

In knitting, as in throwing, the most important single cause of uneven dyeing is uneven tension. Sleazy knitting, although often due to poor throwing, is also due in many instances to improper tension settings, lack of proper lubrication and plasticity of yarn on the machine, and incorrect relative humidity or temperature.

The often recurring problem of tension settings is one which must be solved by the individual mills. Proper humidity and temperature have already been discussed. But a word is needed on lubrication and plasticity. Lack of either of these in a yarn going to the needles, sinkers, and dividers of a full-fashioned machine produces a distorted stitch formed from a yarn loose in one place and stretched in another. The result is uneven dyeing and probably a sleazy stocking. Although the throwster is partially responsible for proper lubrication and plasticity of the yarn, in the case of rayon, the throwster often depends upon the knitter to complete this phase of the preparation, because this practice usually results in a better running yarn.

It is assumed that, through experiments and experience, the dyer has evolved satisfactory scouring and dyeing procedures for hosiery which reaches him in good condition. It is necessary also for the dyer to try in the final finishing bath to smooth out remedial defects carried over from previous operations, as well as to apply the various finishes. However, most major defects—for example, a shiner due to over-stretched yarn—cannot be eliminated permanently with the conventional type of finishes. On the other hand, it is often possible to help even up a sleazy stitch or to improve the appearance and hand of goods made from mishandled yarn.

The author has refrained in this article from delving into the details of how rayon yarns should be thrown and knit, and dyed and finished. Rather, the purpose has been to point out the specific phases of throwing and knitting which are of concern in the operations of dyeing and finishing, and thus to lead to closer cooperation between the throwster and knitter and the dyer and finisher.

Bleaching Cotton Knit Goods

Either chlorine, peroxide, or combination method can be employed; but precautions must be taken to avoid damage to the fabrics

A frequent contributor to TEXTILE WORLD, Mr. Dunlap needs no introduction to our readers. In this article he describes the combination chlorine and peroxide process for bleaching cotton knit goods and a simple method for determining the degree to which cotton has been degraded by formation of oxycellulose.

By E. S. DUNLAP
Chemist, Snow White Bleachery, Inc.
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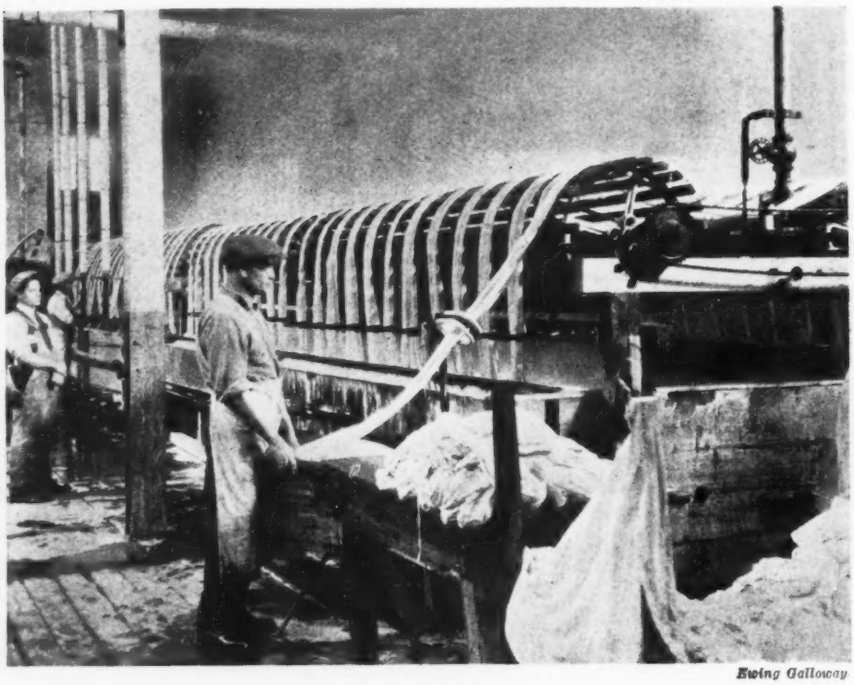


Ewing Galloway

Special precautions must be taken in bleaching cotton underwear fabrics which are to meet strict Army specifications.

MANY KNITTING MILLS are working on Government contracts for bleached cotton fabrics, and undoubtedly other mills will be called upon to do this type of work during coming months. There are certain dangers to be avoided if the bleacher is to process these materials so that they will meet the strict Government requirements.

A recent survey by the Underwear Institute indicates that about 66% of the knitting mills in this country do their own bleaching, and the other 34% have the bleaching done by outside concerns. The methods employed in those mills doing their own bleaching are as follows: Approximately 43% use chlorine alone; approximately 36% use a combination of chlorine and peroxide; and approximately 20% use peroxide alone.

It is unnecessary to describe the methods of bleaching with chlorine alone and with peroxide alone, as both have been employed for many years. The chlorine bleach is usually considered to be the most economical and also the most versatile; that is, it can be carried out in a wide variety of equipment and under a wide range of temperature conditions. It is also relied upon to correct deficiencies in previous operations. A prerequisite to a good bleach by the chlorine method is a thorough alkaline boil-off to remove from the fabric as much as possible of the pectins, waxes, oils, and other impurities. A good boil-off will lighten considerably the job to be performed by the chlorine itself. On the other hand, if the natural impurities are not completely removed, uneven bleaching is likely to result. This, in turn, will lead to further trouble in dyeing.

In peroxide bleaching there are certain variables which should be kept under close control. These include: (1) hydrogen peroxide concentration, (2) total alkalinity, (3) pH, and (4) temperature. The most economical process of carrying out the peroxide bleach is the kier process. The speed of this process and the reduction in the number of operations as compared to the conventional reel machine process help to counterbalance the higher chemical cost. Again, the amount of water per pound of goods is less, thus reducing the demand on the soft-water supply of the dyehouse. An advantage claimed for the peroxide bleach is the permanence of the whiteness. However, many bleachers believe that permanent whiteness can be obtained with other bleaching agents, provided, of course, they are used properly.

Hydrogen peroxide can, of course, be prepared by mixing sodium peroxide and a solution of sulphuric acid. The sodium peroxide and the sulphuric acid react to form hydrogen peroxide and sodium sulphate. Bleaching solutions made in this way differ from those made from hydrogen peroxide in that the latter do not contain sodium sulphate. It should be remembered that sodium peroxide is a strong oxidizing agent and should be handled carefully to prevent accidents. All containers used for transferring it to the mixing tank should be clean and dry. Before a peroxide bleaching solution is placed in a kier (or other iron container) any excess acid must be neutralized.

It has been stated by one authority that the bleaching effect of peroxide is due to ions resulting from the dissociation of the hydrogen peroxide. These ions bleach the colored impurities present in the cellulose; but do not react with the cellulose itself. On the other hand, any damage to the cotton which occurs during peroxide bleaching is caused by molecular oxygen. As there is less evolution of molecular oxygen in a staple bath, such a bath is less likely to damage the cloth. Therefore, those factors—such as pH, total alkalinity, and temperature—which govern the stability of the bath require close control. If a bleacher is not familiar with the peroxide method, he should obtain details as to proper procedure to follow from the peroxide manufacturers.

A TYPICAL PROCEDURE for bleaching cotton knit goods on a reel type machine by the combination peroxide and chlorine method is as follows for a batch consisting of about 36 pieces of fabric: Draw water into the machine—preferably soft water at about 110° F.; add a few quarts of a good wetting agent; and load the pieces into the machine. When the fabric is thoroughly wet out, add from 1½ to 2% of sodium peroxide, bring this bath slowly to 190° F. and maintain at this temperature for about 1 hr. After a warm and cold rinse, about 30 qt. of the ordinary chlorine bleach in general use in dyehouses is added, and the goods are run at about 110° F. for another 1-hr. period. A cold rinse follows, and then another cold rinse containing 1% of sodium bisulphite should show a neutral reaction with starch iodide. Next follows a warm rinse, which may precede a bluing operation if required.

There are several tests that can be made to determine whether or not cotton has been damaged in bleaching. One test is to determine the viscosity of cuprammonium solutions of the cotton. Although few knitting mills are equipped to make that test, it might be mentioned incidentally that viscosity measurements and tensile strength determinations on bleached goods give about the same results for fabrics that have been bleached with and without a caustic boil-off, but the loss in weight is markedly greater when the goods are given a preliminary caustic boil-off.

A very simple test is to dye a sample of the fabric with a direct blue or direct gray dye. If there are light-colored patches in the dyed material, it indicates that oxidation has taken place. If the oxidation has been drastic, the patches can be broken easily with the fingers.

Another simple test which has been described by Kaufman is as follows: A weighed quantity of the bleached cotton to be tested is boiled off with a 3% caustic soda solution and this dissolved organic substance is then titrated with potassium permanganate solution. The number of cubic centimeters of N/10 permanganate required per gram of cotton is called the Boil-off Number. With a Boil-off Number below 10, the material is uninjured. The number rises to 100 if the material is bady damaged through formation of oxycellulose by the bleaching agent.

Advice to Full-Fashioned Knitters

(*Continued from page* 91)

out the dividing motion. Nevertheless, it is essential, and the best results are achieved if this relationship is held correctly until just before the beard-closing movement of the needles. The condition is greatly aggravated by the fact that in commercial use, fabric of varied tightness must be formed, not only in any individual stocking itself, but also on account of different sizes of yarn.

In existing machines, there is no means provided to regulate, separate from the Coulier, the amount of needle motion at the time of the divide. The degree of forward movement of sinkers and dividers is definitely fixed by the verge plate, although it is important to see to it that the slur-cock brings the sinker butts and that the catch bar brings the divider butts as close to the verge plate as possible without jamming (within 0.005 in.). Again, existing machines do not provide means to adjust the time of the forward movement of the needles in relation to the forward movement of the dividers, for the reason that the same cam positions the needles for the Coulier as well as for the divide, also moving them both without possible adjustment as regards timing. In other words, the spot on the regulator cam at which the divide takes place is either on a fixed portion of the cam or is at best a crudely adjustable bit. No adjustment can be made in machines without an adjustable bit, and in bitted machines only the amount of forward needle motion can be crudely varied, but not its timing. As such bit adjustment must be manual, obviously this can only be done for one size of stitch, so that if larger or smaller loops are required because of the difference in yarn size in one portion of the stocking as compared with other portions, or otherwise, there is no practical way in existing machines properly to adjust the needle-divide motion, except crudely and then only for one of its settings. Naturally, it is better—under such limitations—to get the best divide conditions for the ankle, rather than for some other portion of the stocking.

Attempts have been made to introduce regulators which can be correctly adjusted and which automatically vary the divide—as to both depth and timing. At the same time, the Coulier depth of yarn kinking is altered either manually or automatically. An example is shown in a recent patent (U. S. Patent No. 2,273,802), in which the Coulier regulation is entirely independent of the divide regulation, not only as to degree, but also as to timing; and not only is the divide automatically controlled as the stitch is altered, but means are also provided for intermediate manual setting for the extremely accurate adjustment of the divide relationship to the catch-bar motion.

To make it clear that the forward movement of the needles at the divide should not be the same for different depths of Coulier, let us assume that the depth of the Coulier kink shown in Fig. 1 is ⅛ in., and that the divided depth shown in Fig. 2 is half as deep as the Coulier depth, or $\frac{1}{16}$ in. Note that it must not be assumed that this halved relationship represents the correct proportion under all conditions and for all types of yarn. If now the Coulier depth were made $\frac{3}{16}$ in., the divide depth to be correct would have to be $\frac{3}{32}$ in. But of course if the needle divide motion is taken from a fixed part of the Coulier regulator cam, a differing degree of needle-divide motion could not be given. Also, the extreme accuracy of needle motion—both as to timing and degree for the divide—cannot be attained unless the divide motion is given by a cam separate from the Coulier regulator cam.

It cannot be emphasized too strongly that the degree of needle-divide motion relative to the Coulier depth must be extremely accurate, not only to match a given Coulier depth, but also to attain exactly the correct needle divide flexing strain in order to maintain undisturbed the tautness of the yarn between the Coulier and divide kinking. Care must be exercised to see to it that at the divide the needles do not start their forward motion until the dividers have contacted their bar of yarn (Fig. 1). Further, the shape of the needle-divide portion of the cam must be so formed as to bring the needles forward and then backward in unison with the forward-and-backward movement of the dividers, up to the point where the needle beards are closed against the press edge of the machine. All during this motion the yarn kinks must be kept slightly taut.

[*In the next installment, which will appear in an early issue, Mr. Miller will discuss machine settings for even loop and wale formation, and proper take-up tension for substitute yarns employed in knitting full-fashioned hosiery.*—EDITOR]

Throwing Rayon Hosiery Yarns

Low twists and simple procedures are less troublesome to former silk throwsters and mean minimum of alteration to their equipment

This timely article deals with suggestions and recommendations that will prove helpful to those throwing plants which are changing from silk to rayon hosiery yarns—*Editor*

By C. W. BENDIGO

DEVELOPMENT OF TECHNIQUES FOR throwing rayon for hosiery is being retarded by the fact that rayon is considered by some throwsters and knitters as merely a stop-gap, rather than as a permanent substitute. This means that in many instances plant changes are being made with a minimum of alterations to silk throwing equipment. Another retarding factor is that the scarcity of rayon compared with the demand for hosiery tends to justify any methods that will put the yarn through the plant, even though not in such a manner that it would be acceptable during normal times. Counterbalancing these factors is the strong possibility that rayon may be the chief yarn for full-fashioned hosiery for several years, and the fact that throwing plants doing the better work will maintain a reputation that later will be reflected both in the organization and in the market.

It is probably wise that most plants throwing rayon for hosiery are adhering to the lower twists and simpler procedures, which generally consist of: (1) receiving yarn on cones, (2) initial winding and twisting on doubler-twister, (3) completing the twist on up-twister, and (4) coning the yarn on equipment which incorporates an emulsion roll where a lubricant is added. A variation of this procedure is: (1) receive the yarn on skeins, (2) wind to twister bobbins, which are (3) placed on the up-twister where the total number of turns are inserted, and then (4) oiling and coning the yarn.

When inserting crepe twist in rayon, more difficulties are encountered. Skein soaking generally is necessary, and the twist must be set immediately after throwing. The higher turns also require the use of a flyer in the twisting operation. Crepe-twist yarn, unlike the lower twist strands, does not lend itself to oiling on the coner, since this tends to release the latent creping power of the yarn, which causes difficulties in winding. Also, it is sometimes necessary further to set the twist on the coned yarn before it can be knit satisfactorily.

When rayon is soaked, there also is the problem of drying. Silk was air dried and was run relatively damp, although not wet. Rayon yarn must be thoroughly dried before it is wound, which calls for drying equipment, since thorough air drying takes several days or perhaps a week.

Silk swifts are too large for rayon. Spokes of wooden swifts can be cut down easily, but wooden swifts are not entirely satisfactory for rayon, since it is difficult to mount the skeins properly and the swift bands tend to bag, which bunches the yarn and causes poor winding. Wire-type silk swifts also are too large, and it is advisable to replace them with the proper size for rayon. Since it appears that hosiery throwsters are receiving many small lots of rayon from various producers, it is wise to utilize an instantly adjustable swift, rather than one that has to be set and reset as lots change.

In winding to taper-hole bobbins for use on up-twisters, a relatively rapid wind should be employed—not over five wraps per inch, preferably four. An open wind causes the yarn to play off with a minimum of shifting and trapping. Bobbins should be firm and built straight, but the tension should be such that the yarn is not stretched.

IN TWISTING, the same basket wires normally used on silk can be used on rayon if twists are kept low—that is, 30 turns or less—and if the balloons do not hit the separators or other parts of the machine. Rayon tends to balloon more than silk; however, considerable control can be exercised by spindle speeds and the distance of the basket wire (or pig tail) above the bobbin. Generally, the small silk bobbin gives no trouble if the traverse length is not too great.

For skein winding, swifts must be proper size and should be quickly adjustable

In coning operations, there is considerable difference in opinion as to proper type of lubricant. Some knitters believe that surface lubricant is most necessary, others that yarn suppleness should be achieved. This problem was discussed in an article in the January, 1942, issue of TEXTILE WORLD. However, there is no question that uniform coning tension must be employed.

Most throwsters realize the extreme importance of keeping rayon clean, since rayon does not have a protective coating, such as silk sericin, nor will it withstand a severe boil off. Dirt that is twisted into the yarn is most difficult to remove and is extremely objectionable in the light shades in which hose are dyed.

Viscose process rayon is less likely to cut guides and machine parts than is silk or cuprammonium rayon, but it is more susceptible to serious damage by such cut parts. Even when guides or machine parts are grooved so slightly that the cuts cannot be seen by the unaided eye, they can seriously damage rayon. Most silk throwsters and knitters are familiar with the abrasive action of cuprammonium rayon and the resulting damage when running parts are not kept free from cuts or roughness.

If yarns can be run from cones, it is entirely possible to throw rayon for hosiery in a silk throwing plant without purchasing any new or additional equipment. If from skeins, proper size swifts need to be purchased (or wooden swifts cut down). If higher or crepe twist is desired, a dryer or a heated drying room will be necessary for satisfactory results. This also will require a good twist-setting box which, however, most throwing plants have.

Silk throwsters are to be commended for the speed and efficiency with which they adapted their plants to rayon, following close on the heels of considerable hard work in relation to throwing Nylon. Perhaps it would be wise for silk throwsters to pool their problems and solutions for the common good, as did the Nylon weavers.

FIXING HOSIERY MACHINES

CIRCULAR MACHINES—Chapter XVI

By JULIAN W. HUGHES

Wrap And Reverse

IN WRAP-STRIPE PATTERNING, lengthwise stripes are produced by colored supplementary yarns which are wrapped around selected needles elevated above the normal knitting level. This method was designed to effect such stripes more rapidly than could be done by reverse plating and to reinforce the fabric by binding the loops at spaced intervals. And while there is no mechanical reason why the wrap-stripe attachment would interfere with ordinary reverse plating patterning—i.e., sinker reverse plating—it seems that the Hemphill Co. was the first to combine these two features on half-hose when they introduced the Banner Wrap machine in 1929. This made it possible to knit hosiery in a wider range of designs as well as to make the hosiery a more substantial article.

There are two methods of introducing the wrap yarns to the needles. In one the vari-colored yarns reach the selected needles through eyelet tubes or fingers in a disk revolving within the needle circle, either concentric or eccentric with the cylinder. This disk on the Banner machine is eccentric with the cylinder and is lowered during the wrapping operation while the needles selected to produce the wrap stitch are raised above the common level to receive the yarn; on the Scott & Williams machine the disk is concentric with the cylinder, and is swung over the selected needles which are likewise raised to receive the wrap yarn from the finger. The other method employs fingers suspended from pivots which are arranged circumferentially and which are swung outward by means of cams to feed the wrap yarns to the needles.

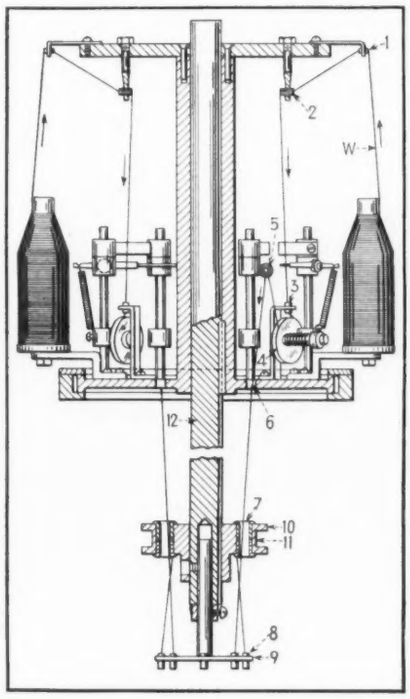


Fig. C36. Revolving stand on wrap stripe machine

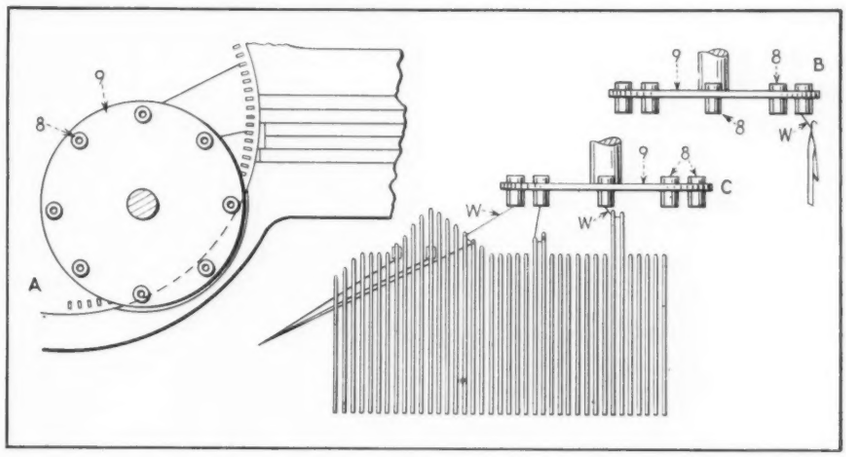


Fig. C37. Position of disk in relation to needles and needle circle

The wrapping head on early machines of this type were limited to lengthwise striping, and the fingers for feeding the wrap yarns to the needles were merely small short tubes in the lower disk of the head through which the yarns passed. Today the wrapping heads have been improved and include a shogging device which affords an almost unlimited patterning scope. Eyelet-tube fingers have been replaced by bracket fingers attached to the wrap-head disks; the newer type is adjustable radially by means of a screw and slot in the bracket finger. Also, more recently, the Banner machine has introduced swinging fingers.

BANNER WRAP MACHINE. In order to fix and properly maintain any machine it is necessary to understand the principle of action and to have a general idea of how the mechanism is arranged to effect this action. So for the sake of clarity it is advisable here to go into some detail and to illustrate and discuss the ways and means of producing the wrap stripe.

In addition to the regular yarn stand, the wrap stripe machine has a revolving stand as shown in Fig. C36. The revolving stand carries to the selected needles the bobbins which supply the wrap threads to be subsequently knit in with the main knitting yarns. Following a wrap thread, *W* in Fig. C36, it will be seen that it passes through eyelets 1, 2, and 3, around tension disk 4, up through eyelet 5, down through hole 6 in the stand gear, through hole 7 in the spindle elevating collar, and then through the tube finger 8 on disk 9 where it is taken by certain needles raised to receive it.

To produce desired effects, the wrap stitches for producing the lengthwise stripes can be interrupted at intervals by raising the disk and fingers up out of reach of the needles. This is always done when the knitting has progressed to the heel or toe, and is accomplished automatically, of course, by connecting the elevating collar 10 to the pattern drum through a thrust bar and a forked lever suitably pivoted, with rollers on the forked end to engage the annular race 11, on the elevating collar. A counterweight suitably connected to the spindle 12, assists the raising of this mechanism.

The position of the disk 9, and its action relative to the needle circle is

illustrated in Fig. C37, A, B and C. And while the disk 9, revolves at the same number of revolutions and in the same direction as the needle cylinder, the needles are able to take the wrap yarn from the fingers of the disk due to the higher circumferential velocity of the cylinder. By studying the relation of the disk and the needles, as shown in these illustrations, one can readily see the importance of keeping the needles in line, and of keeping the disk set to the proper distance with respect to the elevated needles. Otherwise wrap stripes will not be regular.

FULL-FASHIONED MACHINES—Chapter XV

By WALTER A. SIMOND

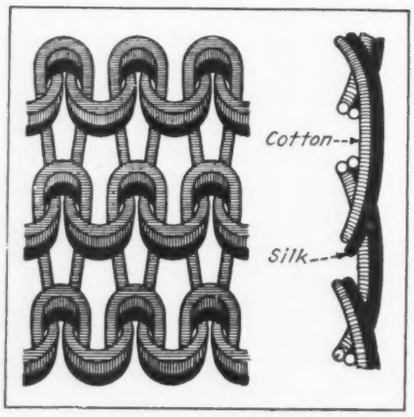
Plating Patterning

PLATING with two friction boxes, each driving the constant lead carrier in one direction only, was designed to relieve the narrowing nuts of the push-pull action while the carriers were held, which adversely affected the carrier positions and narrowings. Although the construction of this type of plating mechanism varies on machines built by different firms, the lead may be changed by the stops for the friction boxes that are usually placed on or connected to the arms which support the carrier rods. The amount of friction on the plating carrier rod should be only enough to prevent the carrier rod from being thrown ahead when the friction-box dog comes in contact with the driving lug on the carrier, in order that the friction on the friction box may be as little as possible.

In perfect plating, the splicing or plating yarn is exactly superimposed upon the main yarn in every stitch, thus preventing specks from showing on the face of the fabric, as shown in Fig. F. 34. Although reverse plating for vertical stripes has been accomplished by the use of plating sinkers having a high portion on the sinker nibs which draws the plating yarn to the face of the fabric when the sinkers are withdrawn, they have not been used in this way to any great extent.

The lead required for plating varies with the character of the yarn used. For worsted yarns; $\frac{3}{16}$-in. lead has been found best; smooth cotton yarns usually plate clearly at $\frac{5}{8}$-in. lead; and silk splicing, in the gum, usually works well at a slightly longer lead. The longer leads permit a slightly higher machine speed in the plated portions of the stocking.

The relative plating speed for leggers and footers is in direct ratio to the length of their Coulier strokes. When the speed of a footer having 10-in. heads and 14½-in. Coulier stroke is 48 courses per minute, it indicates that the correct speed for the legger on the same kind of work would be approximately 38 courses per minute. Stated proportionally, 18½:14½::48:x, when 18½ in. is the length of the Coulier stroke

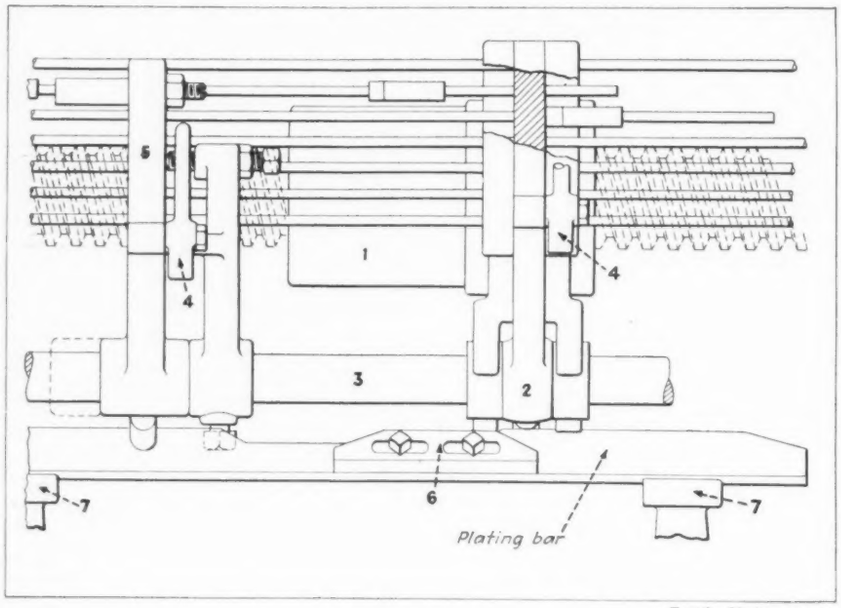


Textile Machine Works

Fig. F34. Method of plating

for the legger. For adjusting or readjusting the plating bar and cam-piece, 6, Fig. F35, which control the distance the carriers travel ahead of the sinkers, the following procedure is recommended: First inch the machine until the full lead is attained and the last sinker fully drawn, and then measure the lead—the distance from the center of a carrier tube to that last drawn sinker. The difference between the actual load and the lead desired is the distance the plating bar must be moved. Set the bar first, because moving the bar changes the cam-piece also; use a small square and scribe a line across the back edge of the plating bar and the slurcam box connecting bar; loosen the clamping screws which hold the plating bar and move the bar until the distance betwen the ends of the scribed line equals the distance wanted; before fastening the screws be sure the plating bar is back against the lips of the supporting brackets 7, or the bar will spring when unlocking the carrier in the reverse direction; mark the position of the cam-piece on the plating bar and move the cam-piece the distance from the mark required. Then repeat these settings at the other end of the knitting machine.

Because of the extremely short carrier leads required for plating it is most important that the arresting levers 5 and 2, Fig. F35, or their equivalent vertical slides drop quickly enough to prevent rebounding of the carrier. After the carrier lead has been correctly set, careful tests at plating speed should be made to make certain that the plating carriers are held to their stops with a minimum of end play.



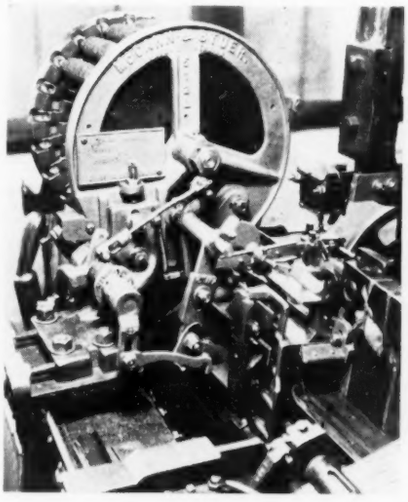
Textile Machine Works

Fig. F35. Plating bar and cam-piece

TEXTILE EQUIPMENT NEWS

Improved Filling Mix Attachment

Several important improvements have been made recently in the filling-mix attachment for automatic looms manufactured by Harry Stephenson, McCann & Stuer Division, River Works, Andover, Mass. Known as the McCann & Stuer Patent 3, 4, or 5 shuttle mix, this attachment has been used for some time in the woolen industry in weaving



Filling mix attachment (Stephenson)

fabrics with contrasting colors in warp and filling. In its improved form it is now being employed by worsted mills in weaving Government fabrics. A single pick from three to five shuttles assures evenness of the fabric and is said also materially to increase the strength of the cloth. Installation of the attachment is carried out without addition of gears, cams, levers, pump rods, shafts, or other working parts to the loom. Operation of the attachment is simple, and the only movement on the attachment is when a transfer is made of a full bobbin to replace an empty bobbin in a shuttle. The attachment is made for both right- and left-hand looms—equal or 2-in-1 geared.

The three recent improvements are: (1) a power-operated latch for the actuator; (2) a combination opener and closer for the yarn cutter and holder; and (3) an adjustable shuttle guide on the shuttle-box guide.

The new actuator latch is opened by the lay as it comes forward after the feeler indicates a substantially exhausted bobbin on back center. A solenoid mounted on the frame causes the latch-release mechanism to come into the path of the lay projection. The advantage of this feature is that the solenoid has a very small force to overcome, which greatly simplifies the setting and operation.

With the combination opener and closer for the yarn cutter and holder, there is only one part to set. In operation, the cutter is open only at the end of the stroke and cannot pick up and cut off ends from previously transferred bobbins, which could be carried by the shuttle into the cloth and cause side liners. The cutter is opened by a hook which falls into position at the proper time. This hook holds back one blade of the cutter as the cutter moves forward and also delays the action of the cutter until it is in position to select the correct yarn.

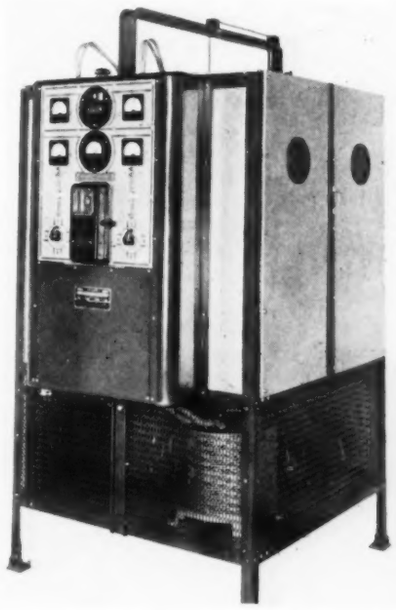
The new shuttle guide attached to the box guide permits adjustment for wear of the shuttle guide. Where a multicell-box is mounted under a filling battery, all that is necessary to correct for wear and to obtain proper alignment of the shuttle with the filling battery is to adjust the guide, whereas formerly it was necessary to change the position of the whole battery.

Other features of the attachment are protective devices which operate if a bobbin or shuttle is not in line with the magazine at the time of transfer to prevent smashes, breakages, and bad doffs.

Testing Equipment for Weathering

For determining the effect of weathering on fabrics Atlas Electric Devices Co., Chicago, has brought out a new twin-arc Weather-Ometer. With this instrument, a manufacturer can check the influence of weathering of his specimens and evaluate the quality of resistance of his products, without losing valuable time.

The twin-arc Weather-Ometer is said to faithfully duplicate the action of outdoor weathering by combining the action of June sunlight, rain, heavy dew, and thermal shock. It is reported to be a distinct improvement over previous models and was developed especially for those whose needs call for even more greatly accelerated test results. Increase in speed and efficiency over previously available equipment is accomplished by the increase of active light at the specimen and the coordination of thermal shocks produced by a cold water spray. The instrument is equipped with a robot cycle meter governing the light and thermal shock periods automatically, and the cycle can be modified for various materials. The



Weather-Ometer (Atlas Electric)

manufacturers state that no operator attention is required other than inspection of samples and reloading of the arc units once in each 24 hours.

Substitutes for Metals in Textile Industry

Recently introduced to the textile industry as a substitute for metals is Formica, a laminated plastic made with synthetic resins of the phenolic or urea types, by Formica Insulation Co., Cincinnati, Ohio. Formica products may be molded or machined and used in the textile field for such applications as non-metallic gears, loom box sides, separator blades on twister, tenter frame openers, inspection table tops, linings for truck bodies in which dyed fabrics are hauled, truck wheels, etc. Advantages cited are that it is lighter

than aluminum, non-porous and easily cleaned, chemically inert. Although resilient, it is hard and durable and of high dielectric strength. It is stated that bobbins and brackets made with Formica will not absorb dyes and that it may be used in racks for drying skeins of rayon. Table-tops of this product, especially those for inspection, are smooth and will not snag fabrics. Formica comes in different thicknesses, colors, and grades some resistant to acids, others of good machining quality.

Multi-Point pH Recorder

Simultaneous records of pH at separate and independent points are possible with a Multi-Point pH recorder, manufactured by Cambridge Instrument Co., New York. A continuous record chart, as illustrated, enables the operative to detect at all times any changes in operating conditions, thereby making possible the output of a more uniform product and the elimination of waste. The instrument which provides these records is conventional in appearance, but incorporates an outstanding advance in circuit design that permits installation of the measuring electrodes at separate and independent sampling points in the plant. They are connected electrically to the recorder which may be a considerable distance away.

Multi-point pH recorders should be particularly applicable in the wet processing of wool, where improper pH control will result in damage to fibers and where the effectiveness of scouring and bleaching agents is also dependent upon proper pH values. Other suggested uses of the instrument are in desizing by acid or enzymes, carbonizing, bleaching, dyeing, and neutralizing after mercerizing, etc.

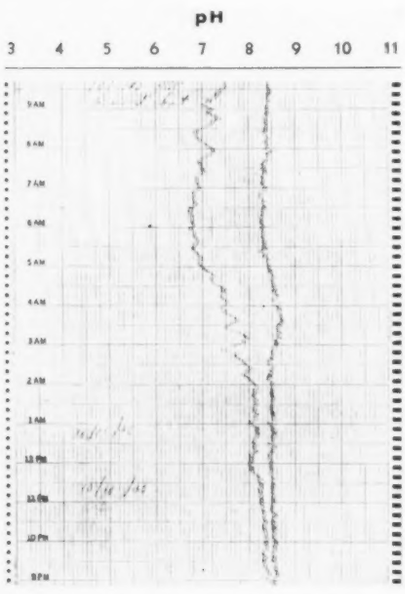
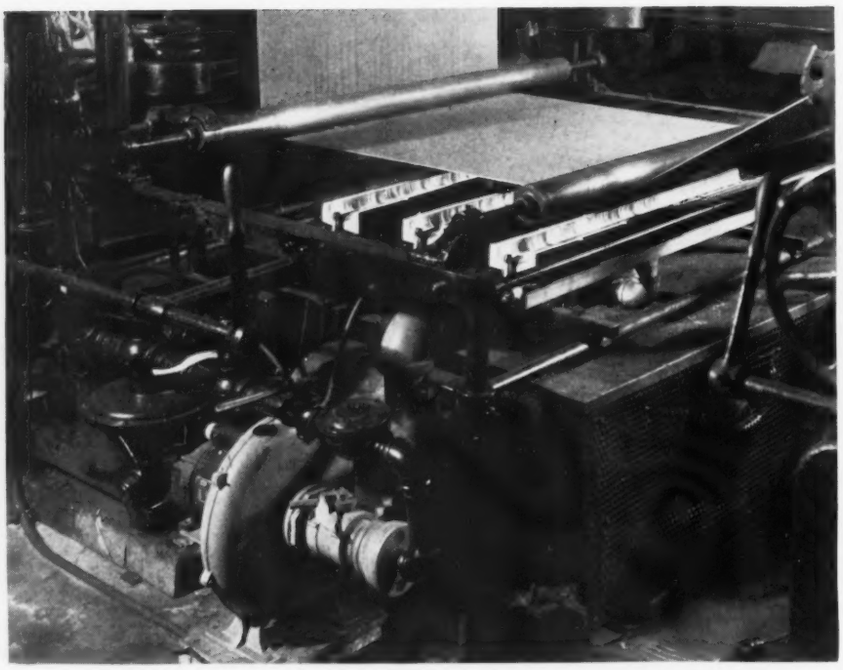


Chart Recording pH (Cambridge Instrument)



GAS-FIRED INFRA-RED DRYING UNIT recently installed at F. P. Maupi Dyeing Co., Inc., West New York, N. J., speeds up drying operation. This type of unit, which is manufactured by Red Ray Mfg. Co., 455 West 45th St., New York, was described in the December, 1941, issue of TEXTILE WORLD.

Improved Doubling and Tacking Machine

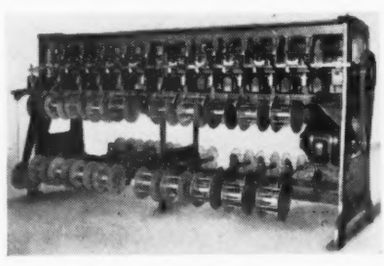
A tacking and doubling machine of improved design has been made available by Dinsmore Mfg. Co., Salem, Mass. This machine, No. 27, sews any length stitch up to 1¼ in. on any length or width of goods and of any weight. Improvement in oscillating needle bar sewing head permits greater speeds for tacking selvages.

Spooler for Carpet Yarns

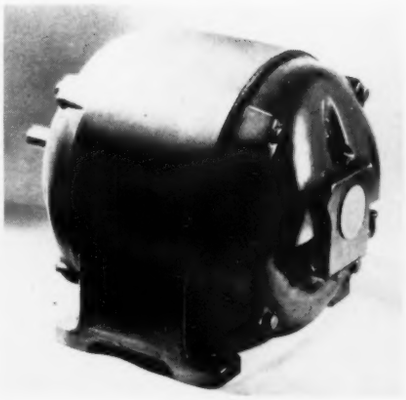
Development of a spooler, Model DH-400, is announced by F. A. Lazenby & Co. Inc., Baltimore, Md., for the spooling of yarns for carpet and rug mills. Also, this spooler is adapted to the winding of yarns from twister spools. Designed for the winding of spools of yarn for the carpet and rug industry, such as a 4-in. wilton spool, this machine possesses many automatic features, including a stop-motion for broken ends, automatic part-spool winding, and automatic friction-roll release.

Constructed of sturdy cast-iron samsons, steel rails, and adequately braced, this machine is free from vibration. Wherever possible, ball bearings, self-lubricating bushings, and case-hardened parts are employed so as to reduce to a minimum friction and maintenance. Standard equipment includes a complete motor drive consisting of V-belts and pulleys, a manually operated starting switch for the convenience of the operative, and Lazenby metal barrel runners. Adjustable runner brackets, special large disk tensioning units for controlling the yarns, and adjustable tension bars are also included.

It is stated that this spooler is capable of higher winding speed, increased yardage on the spools, and greater production per operative; and in addition, special features of part spool winding, the automatic stop motion, and the ease of adjustments, make this machine ideal for the spooling of carpet and rug yarns. The spooler is built in double frame type, having rows of spindles on either side, and is available with 10, 12, or 14 spindles to a side.



Spooler for carpet yarns (Lazenby)



Motor (Allis-Chalmers)

Motor with All-Round Protection

Safety-Circle is the name applied to a new electric motor of unique, but tested design, intended to protect it against damage and breakage caused by exterior knocks and abuse. Essentially, this motor, as announced by Allis-Chalmers, Milwaukee, Wis., consists of a wide, solid rib integrally cast as a part of the frame to encircle the entire motor so as to form an unbroken circle of protection around the stator.

One-piece cast frame and cast end-shields — safety-circle construction — guard the motor from external injury. Improved bearing design with full lubrication insures low maintenance costs. The rotor is keyed to the shaft for strength and the stator designed to give additional cross strength. Bearing flushing is easily accomplished by means of oil drains, a feature intended for minimum motor maintenance.

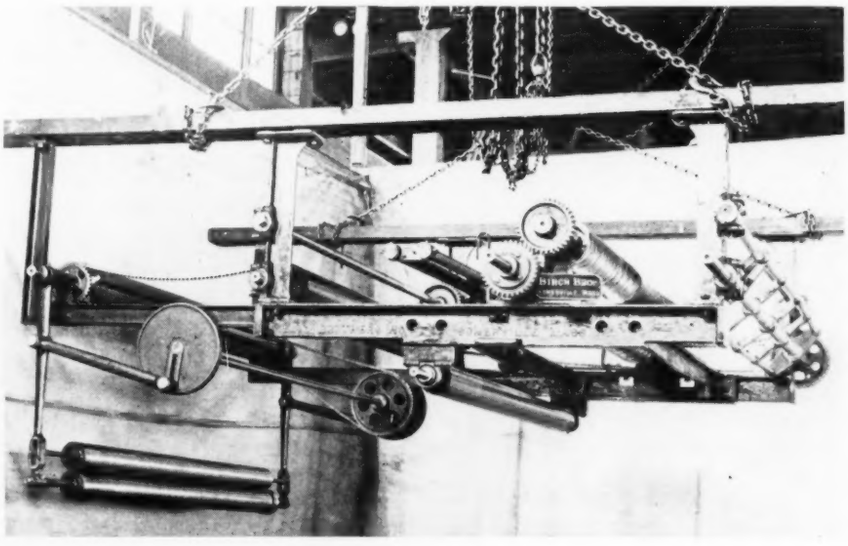
Measuring and Examining Machine

Development of a new cloth measuring and examining machine has been announced recently by Consolidated Sewing Machine & Supply Co., 1115 Broadway, New York. The machine, known as the Cloth-Checker, is designed to operate at cloth speeds as low as 11 yd. per min. for examining, and as high as 64 yd. per min. for winding and rewinding. A yardage indicator measures accurately to $\frac{1}{8}$-in. fractions. Standard machines are built in 48 and 58-in. widths; wider machines are made on special order. Extra attachments are available for flat or half folds.

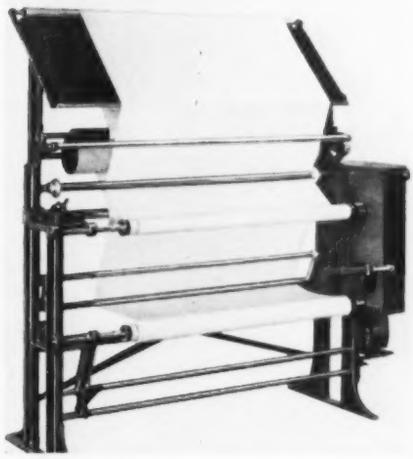
The machine is easy to thread and simple to operate, and is designed to give quick access to the speed-control lever and reverse handle. A ball-bearing rubber rolling bar attached to the yardage indicator insures non-slipping and accurate measuring.

Cloth Scutchers

Scutchers or cloth openers with extended folders have been announced by Birch Brothers, Inc., Somerville, Mass. Both standard and heavy-duty ball-bearing machines are now built with this extended folder, which is designed particularly for use with squeeze rollers. These machines eliminate the use of a folder separate from the opener and take a minimum of space and erection work. After the cloth passes through the governor, it passes over a guide roll to the squeeze rollers and then up again to the folder. The machines are built in all widths.



Scutcher (Birch Bros.)



Measuring and Examining Machine (Consolidated)

Unit-Type Capillary Air Conditioners

Capillary air conditioners of the unit type that may meet varying conditions such as air washing, humidifying, and evaporative cooling, depending on the requirements of the mill and the design of the unit, are being offered by Air & Refrigeration Corp., New York. Conditioners of the 34 Capillary Unit type are recommended for mills and laboratories where accurate control of temperature and humidity is important and where air cleaning is required. Individual units capable of handling up to 16,000 cu.ft. per min. are available.

Units may be suspended from the ceiling, mounted on legs, or placed on the floor. Essentially, they consist of a section for washing and filtering the air and for eliminating excess moisture, a section for either cooling or heating the air depending on the requirements, and a fan for distributing the conditioned air.

The filtering section consists of a capillary cell of patented construction using glass fibers as the filtering medium. Water sprayed over the capillary cell keeps these fibers wet and also washes from the filter all particles removed from the air. A fan chamber besides having a fan-wheel for drawing air through the unit, also has coils for reheating the air.

The 34 capillary unit may be fitted with automatic control instruments for maintaining constant conditions. This unit is recommended for textile mills and, it is stated, may be used for the absorption of chemical fumes where they are released in the operating area. Equipment is fireproof, as the filtering medium is glass and is always wetted down with water.

Useful Accessories for Textile Mills

Increased rated life of 100-watt fluorescent lamp is announced by Hygrade Sylvania Corp., Salem, Mass. It is stated that the rated life of the lamp has been increased from 2,500 to 3,000 hours. When this lamp was first introduced, only slightly more than a year ago, it was given a rated life of 2,000 hours.

A new line of fluorescent lamp starters, designed to protect ballast and starter and to eliminate the flashing of failed lamps, is also announced by Hygrade Sylvania. Automatically opening the circuit when a lamp fails, the Premium Mirastats, as the starters are called, are especially suitable for installations that make immediate replacement of a burned-out lamp impractical.

A manual control, of new design for remote valves, dampers, and other pneumatically operated equipment is announced by Foxboro Co., Foxboro, Mass. Specifically designed for dead-end service, the remote valve control unit will hold reduced pressures, dependably, to values within very narrow limits. The unit is equally useful in other applications, such as the setting of the control points of distant instruments or the adjustment of positioning or pressure-producing pistons, located in inaccessible points. It is practical for operation over distances as great as 1,000 ft.

A 25-hp. Electrifugal single-unit pump, has been announced by Allis-Chalmers Mfg. Co., Milwaukee, Wis. The new pump is built with both motor and pump on one shaft and in one housing. Advantages cited include 33% saving in space, only three section-fits, better shaft alignment, less vibration, less wear, easier installations, lower pumping costs. The addition of the new unit to the line now makes available a full range of sizes and types from ½ to 25 hp.

A V-belt drive "Lightnin" top-entering mixer has been announced by Mixing Equipment Co., Rochester, N. Y. Speed can be changed merely by changing the sheave and pulleys, or a variable speed pulley allowing approximately 25% speed variation can be provided on the motor, it is stated. The drive can be furnished with electrically conducting belts or oil resisting belts where necessary.

Selflube porous bronze bearings in several new shapes and sizes have been developed by Keystone Carbon Co., Saint Marys, Pa. They have an average porosity of 35%, enabling them to store a large amount of oil which forms a protective, continuous oil film on the bearing surface. Because of their high strength, these bearings will carry maximum loads without distorting or breaking. They have a low coefficient of friction which, together with their self-lubricating qualities, prevents excessive temperature, speed reduction, noise, and scoring of shaft.

New Dyes and Chemicals

Concentrated Desizing Agent

For removing starches, gums, gelatins, and other sizing matter, Royce Chemical Co., Carlton Hill, N. J., has recently introduced a concentrated powdered desizing agent known as Neozyme. A typical desizing formula consists of 1 lb. of Neozyme to 100 gal. of water at 125 to 130° F. Time of treatment for complete digestion of the sizing materials is usually 30 to 45 min.

Aridye Sandbag Brown and Camouflage Colors

Two new products developed to meet war needs have been announced by Aridye Corp., Fairlawn, N. J. These newly introduced products are Aridye Sandbag Brown and Aridye Camouflage Colors. Aridye Sandbag Brown was formulated to meet the U. S. Army Corps of Engineers Specification No. T-1452, with amendments 3, 4, and 5 (Processing and Coloring Material for Sandbags). Aridye Sandbag Brown is a solution of asphalt and emulsifying agents in mineral spirts. Its use as a coloring medium—emulsified with copper naphthenate solution, mineral spirits, and water—has been approved by the Development Section, Chief of Engineers, War Department. This emulsion may be applied on a two-roll padder and dried by any available method; i.e., dry cans, tenter frame, or special dryers.

The specification calls for 3% asphalt and 0.8 to 1% copper in the fabric after 24 hr. of leaching. To provide for the leaching loss, 0.96% copper is recommended. The following formula will provide this, based on a theoretical take-up of 60% on 10-oz. burlap: 11.7 lb. Aridye Sandbag Brown, 20 lb. copper naphthenate 8%, 22 lb. mineral spirits, and 46.3 lb. water.

Aridye Camouflage colors are manufactured specifically for application on osnaburg or burlap as required by U. S. Army Tentative Specifications Nos. T-1212 and T-1213, with amendments. These colors, containing the specified pigments, are easily mixed into a specially prepared emulsion and applied to the cloth on a two-roller padder, followed by drying on ordinary equipment, such as dry cans and a tenter frame. Colors available are Camouflage Brown R, Brown KG, Yellow K, Green 3K, and Black K. Following is a typical padding formula: 12 lb. Camouflage Brown KG, 8 lb. Camouflage Black K, 5 lb. copper naphthenate, and 75 lb. clear emulsion No. 8072.

Calco Colors

Calco Chemical Division of American Cyanamid Co. announces the following new products: Calcochrome Orange LC, a chrome color which is unaffected by sulphuric acid carbonizing; it is of good fastness to light and can be applied by either the top chrome or meta-chrome method.

Calcochrome Brown RV Conc., a chrome color recommended as a brown component in formulations for producing Army and Marine Corps Olive drab shades; it is of excellent fastness to light and can be applied by the top chrome or meta chrome method.

Mothproofing Compounds

Two new moth-repelling compounds of the silicofluoride type have been announced recently by General Dyestuff Corp., 435 Hudson St., New York. These compounds, Mothex Extra and Mothex W Extra, are stable, colorless, odorless, non-volatile, and non-poisonous. So long as they are not washed, materials treated with either of the compounds will be permanently mothproofed. The two products differ primarily in solubility.

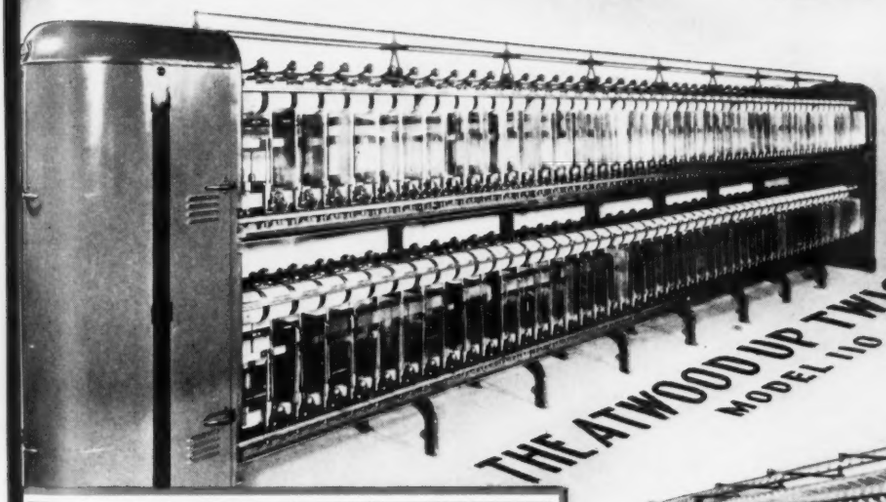
General Dyes

General Dyestuff Corp. announces the following new product:

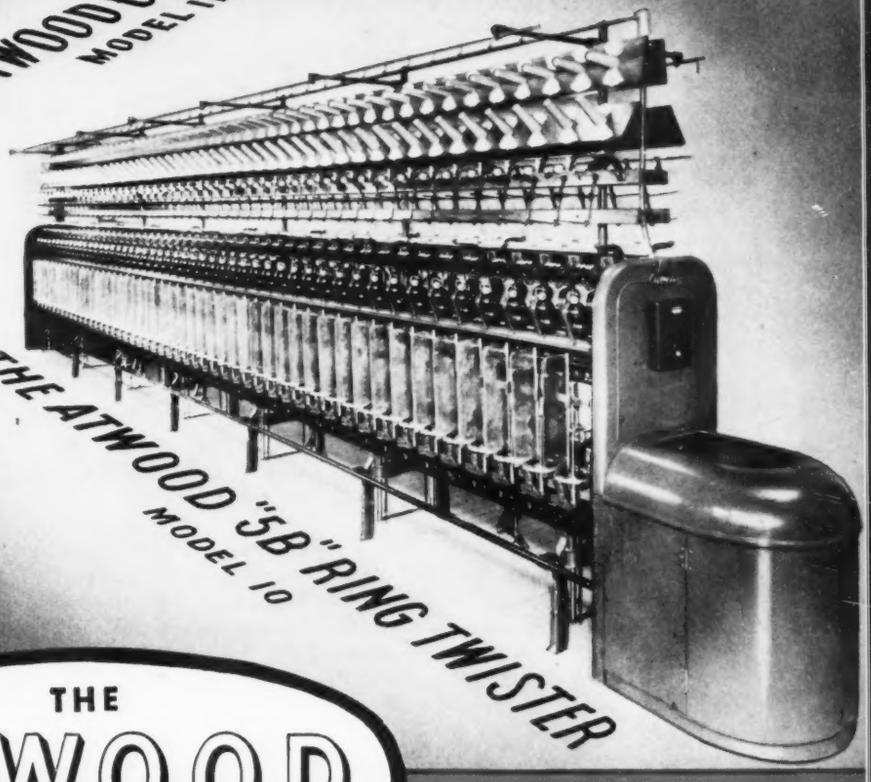
Rapid Fast Red FGH Powder, a Rapid Fast Color for printing, which produces bright shades of red possessing good fastness to chlorine and very good fastness to washing and to light; since Rapid Fast Red FGH Powder can be developed in either acid or neutral steam, it can be printed alongside either Algosol or vat colors.

MODERN ATWOOD MACHINERY

THE ATWOOD REDRAW
MODEL 200



THE ATWOOD UP TWISTER
MODEL 110



THE ATWOOD "5B" RING TWISTER
MODEL 10

Because YOU are looking ahead, too!

Your present machines must be kept on the job — maybe working longer and harder than ever. Atwood parts and service back you to the limit.

Out and out war production comes first here at Atwood as elsewhere. But we want you to know that these — the finest machines Atwood has built in all our 90 years experience — are ready and able to meet your needs — *now*, if priorities permit — and immediately the emergency is over, in any case. Their ability to produce more and better yarn at lower cost has been thoroughly tested and proved in the field.

THE
ATWOOD
MACHINE COMPANY

STONINGTON CONN., U. S. A.

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New Publications

New Edition of "Textile Fabrics"

TEXTILE FABRICS, Revised Edition; by Isabel Wingate, Prentice-Hall, Inc., 70 Fifth Ave., New York; $5.35.

Representing the eighth printing, this revised edition brings up to date the material contained in this book intended for the retail field and the consumer. Primarily intended to give the retail employees an understanding of the fundamental facts concerning tex tiles to permit them to obtain a better understanding of labeling of fabrics as to fiber content, this book also is of interest to the consumer. Divided into two-sections, part one briefly covers an over-all picture of textile fibers, fabric construction, and customer demand. The second part is devoted to the selection of appropriate fabrics.

Standards Brought Up to Date

1941 SUPPLEMENT TO A.S.T.M. STANDARDS. Part III, Nonmetallic Materials—General; American Society for Testing Materials, 260 S. Broad St., Philadelphia; $8.

Of interest to many mill men because it contains 119 standards, covering many materials purchased by textile mills and many of the yarns and cloths manufactured. Standards relating to general textile materials, asbestos, cotton, glass, jute, rayon, and wool are covered; and in addition, standards relating to products purchased by mills, such as petroleum products and lubricants, textile materials for electrical insulation, rubber belting and hose, insulated wire and cable, and soap and other detergents.

To Help Foreman to Uniform Interpretation

HOW TO PREPARE A FOREMAN'S POLICY MANUAL, by R. C. Oberdahn; National Foremen's Institute, Deep River, Conn.; $6.50.

This publication, in loose-leaf binder with indexes and tabs, is actually a replica of a manual of procedure for foremen containing various company policies, rules, practices, procedures and regulations listed alphabetically, which have been developed by some of the outstanding companies in the country. The first section of the manual consists of material which has long been recognized as basic, and is entitled "The Foreman's Job." The second section is entitled, "Legislation," and the third "Company Policies." R. C. Oberdahn, the author, is director of training, Calco Chemical Division, American Cyanamid Co., and he dedicates the manual to America's industrial supervisors upon whom has been thrust the responsibility for fulfillment of the greatest industrial program in history.

Management as a whole has placed added responsibilities in the hands of foremen with little or no authority and no definite outline to guide them in the performance of their new duties. The author believes that by placing in the hands of the foremen a Foremen's Policy Manual, outlining definite company rules, how a foreman is to interpret them, when he is to interpret them, and under what circumstances—all set down plainly and clearly so that every foreman throughout the plant will do the same thing under similar situations—the attitude of the workman will be favorable. Uniform response in situations involving employees develops confidence and is one of the bases of good employer-employee relations.

Discussion of Packaging Problems

MEETING THE SHIPPING CONTAINER SHORTAGE: TECHNICAL PROGRESS IN SHIPPING CONTAINERS: THE ECONOMICS OF PACKAGING: CHANGES IN PACKAGING TECHNIQUES; published by American Management Association, 330 West 42nd St., New York.

These four booklets are compilations of the proceedings of conferences held in April and September, 1941, at which leading representatives of Government, industry, and the public attempted to analyze the present emergency with respect to shipping containers. The subject matter covered by each of the four titles is discussed and illuminated from many points of view.

The first two booklets present the views of industrial and Government leaders on packaging in general for industry and commerce, and on such subjects as "Packing Specifications on Army and Navy Shipments," "The Present Emergency in Shipping Containers," "The Situation in Kraft," "Possibilities of Multiple-Use Containers," and others. The later two booklets present the picture more from the point of view of packaging for the consumer. The discussions deal with many of the materials used in textile packaging, and textile manufacturers should find much of the information pertinent and helpful.

Other Publications of Interest to Textile Men

WELDING PROCEDURE; Air Reduction Sales Co., Lincoln Bldg., New York; 60c. Book describes proper welding methods for specific metals and alloys. It is of particular interest to plant engineers, master mechanics, and welders.

INDEX TO A.S.T.M. STANDARDS INCLUDING TENTATIVE STANDARDS, December, 1941, issue; American Society for Testing Materials, 260 S. Broad St., Philadelphia. This booklet is an index of those standards and tentative standards of the society listed by subject and by numerical index, and acts as a guide in locating standards appearing in bound publications.

RECOMMENDED REQUIREMENTS FOR FLAMEPROOFING OF TEXTILES, 1941 National Fire Protection Association, 60 Batterymarch St., Boston. 15c. Requirements of flameproofing recommended, flameproofing treatments, method of tests for flammability are discussed.

News of Suppliers

Stein, Hall & Co., New York, have appointed Edward D. Estes to head the Georgia and Alabama territory with headquarters in Atlanta, succeeding W. B. Strickland who has joined the U. S. Regional Research Laboratory in New Orleans. Mr. Estes has been for more than six years head of yarn processing and slashing in Riverside & Dan River Cotton Mills, Danville, Va.

Dyestuffs Manufacturers Industry Advisory Committee of the WPB, reported in these columns last month, also includes E. M. Maxwell director of domestic sales of National Aniline Division, Allied Chemical & Dye Corp., New York.

R. & H. Chemicals Dept., E. I. du Pont de Nemours & Co., Wilmington, Del., has appointed Frank S. MacGregor, previously director of the parent company's Priorities Division, to replace Milton Kutz as assistant general manager. Mr. Kutz has been away for

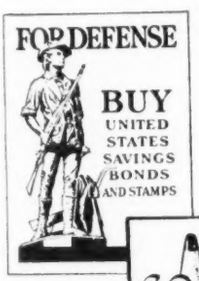
for the duration

Page 23
Sonoco Catalog

. . . . eleven colors—dyed in the pulp and each requiring a complete change-over in our paper mills—have been eliminated for the duration . . . and *with the full approval of our customers.*

SONOCO pioneered this development as a means to better identification of yarn. It is important, but not as important as increasing our total *production.*

As a substitute measure, we can supply a partly dyed cone, but mainly we can supply 10 to 15% more production in *vital* textile paper carriers. Our technical service department is at your call to help solve any problems resulting from this change-over.



SONOCO MAKES *EVERYTHING* IN *PAPER CARRIERS*

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY

several months due to ill health and upon his return will assume his new duties as sales adviser and assistant to the general manager of the R. & H. Chemicals Department.

Foster Machine Co., Westfield, Mass., has elected Henry S. Washburn as president succeeding Edward T. Fowler who has retired after serving as president for many years. Mr. Washburn is also president of H. B. Smith Co., Plainville, Conn., and of the Plainville Casting Co. He is on the board of the American Foundrymen's Association.

Republic Filters, Inc., Paterson, N. J., is the new name recently adopted by the American Seitz Filter Corp.

Grasselli Chemicals Dept. of E. I. du Pont de Nemours & Co., Wilmington, Del., has appointed Emmet C. Thompson, lately assistant general manager to succeed to the position of general manager on the retirement of Edward W. Furst. Clark W. Davis becomes assistant general manager. Mr. Furst joined Grasselli in Cleveland in 1893.

Mathieson Alkali Works, New York, are pointing out to users that unless chlorine cylinders are kept in constant circulation, many users may have difficulty in obtaining adequate supplies. Producers can get no new cylinders.

Saco-Lowell Shops, Boston, reported $949,478 net profit for the fiscal year 1941 (ending Nov. 30), after charges and a $900,000 contingency reserve. Current assets were $7,335,867 against $2,235,065 current liabilities. Working capital was $5,100,801 against $3,986,372 in 1940. Defense needs and South American orders nearly doubled the business in 1941. Ordnance equipment and textile machinery needed for war work and repair parts dominate the production outlook this year, according to David F. Edwards, president of the company.

National Starch Products, Inc., New York, announces that Chester A. Gage, vice-president in charge of sales, will make his headquarters at the company's offices in Chicago, Ill. Milton J. Heim, manager of the company's mid-western division, will assume charge of the enlarged central and southern territory, with headquarters at the company's offices at Philadelphia, Pa. Donald D. Pascal, manager of the Philadelphia office, will come to New York to head National's recently enlarged war service department, devoted to the coordinated solution of customer's war-time problems.

Cochrane Corp., Philadelphia, Pa., has appointed the Power Specialty Co., Houston, Texas, to represent them in southeastern Texas on Cochrane meters.

Kimmel-Teat Machinery Co., Greenville, S. C., has changed its name to Leon Kimmel Machinery Co., Inc.

Irwin Dyestuff Corp., Ltd., Montreal, Canada, is the new name of the former Consolidated Dyestuff Corp., Ltd., which has lately come under the control of John Irwin. Prior to the war, there had been a substantial German interested and the business had been in the hands of the Custodian of Enemy Property since September, 1939.

CONTINENTAL GIN CO., Birmingham, Ala., recently was awarded the coveted Navy "E" Pennant, Bureau of Ordnance, as a recognition of outstanding effort in production of ordnance, materials vital to the national war effort. The presentation was made by Captain H. A. Spanagel, U. S. Navy, and the award was accepted by Merrill E. Pratt, president of the company. Shown in the picture above (left to right) are Capt. Spanagel, Mr. Pratt and (seated) W. Cooper Green, president of Birmingham City Commission, who delivered the address of welcome at the ceremonies held at the plant.

GOVERNMENT APPOINTMENTS

FRENCH E. DENNISON of York (Pa.) Ice Machinery Corp. has been appointed chief inspector for the Philadelphia Ordnance District by the War Dept.

A. E. STALEY, president of A. E. Staley Mfg. Co., Decatur, Ill., has been appointed chief of the Corn Products Section of the Food Supply Branch of the Division of Industry Operations, WPB.

H. J. FRENCH, of the technical staff of International Nickel Co., New York has been made senior technical consultant of the Metallurgical and Specification Section of the Iron & Steel Branch, Division of Materials, WPB.

D. EDWIN GAMBLE, vice-president and general manager of Borg & Beck Division, of Borg-Warner Corp., Chicago, has joined the staff of the Ordnance Branch of Production Division, WPB.

K. S. LORD has moved from Greenville, S. C., to Washington where he will be connected with the WPB Production Division, tools branch, specializing in the electrical end. Mr. Lord has represented Reliance Electric & Engineering Co., Cleveland, Ohio, in the Southeast for the last several years. His family will remain in Greenville for the present.

Crompton & Knowles Loom Works, Worcester, Mass., received honorable mention in the Massachusetts Safety Council list of 1941 awards to firms in that state. The Doyle Works of E. I. du Pont de Nemours & Co., Leominster, Mass., also received honorable mention.

Robert Reiner, Inc., Weehawken, N. J., is erecting a 75x175 ft., 2-story, plant addition. The company, now working at full capacity, is 90% on war material, and added space will be utilized to augment production along that line. The company will, however, continue to provide parts and service for its textile machinery and to develop its new line of high-speed warping equipment. Fritz Lambach, chief engineer and general manager, is directing the defense work, assisted by Robert Reiner, Jr. Emil Nufer is in charge of the embroidery machine division, and August Schoenenberg is sales manager of the warping equipment and knitting division.

United States Testing Co., Hoboken, N. J., will hold its yearly summer course in Current Textile Analysis and Testing from July 6 through July 24.

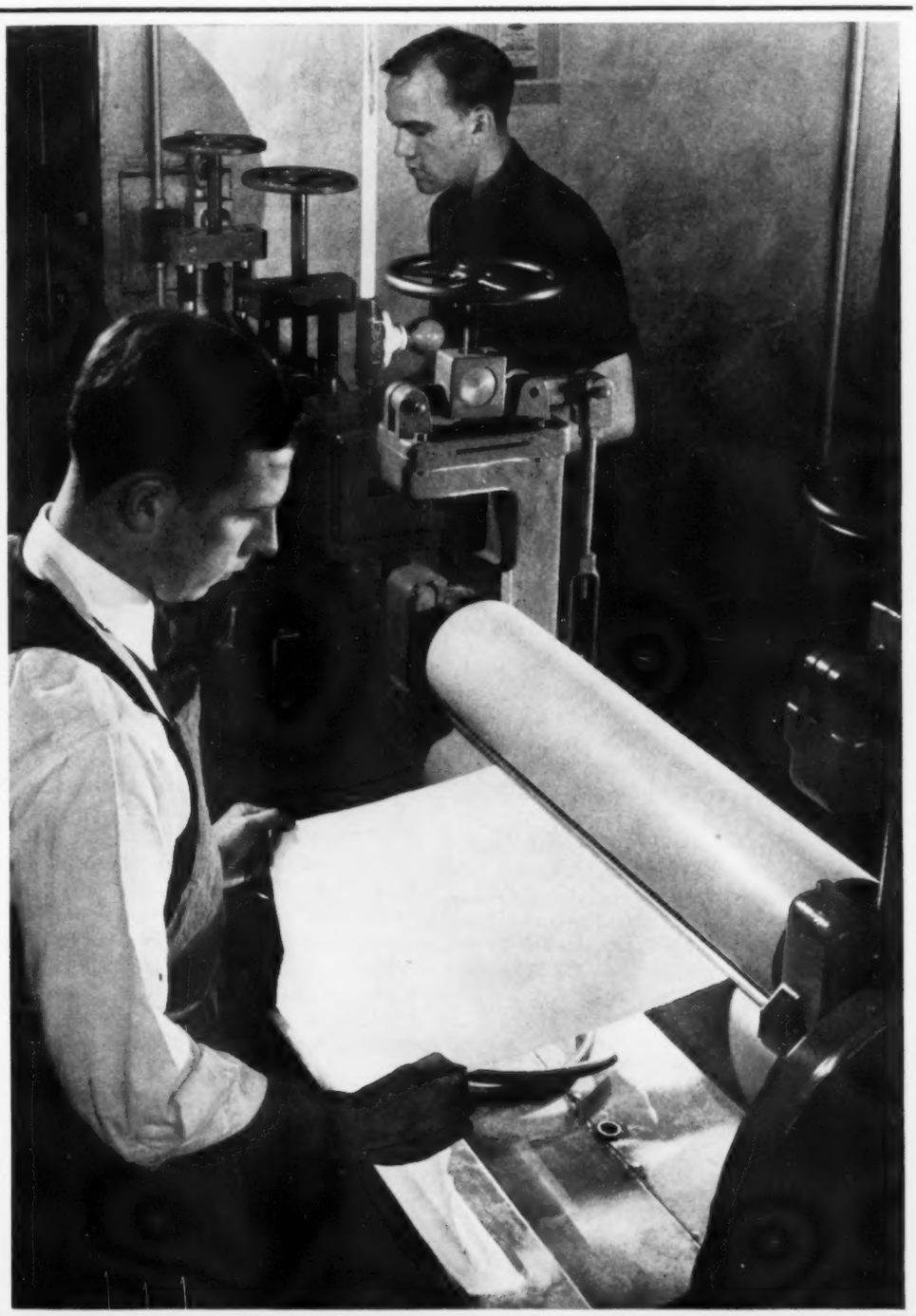
Lincoln Electric Co., Cleveland, Ohio, reports new addresses for certain of its branch offices as follows: Milwaukee office is at 733 North Van Buren Street, F. C. Archer continues as District Manager; R. M. Daniels is in charge of the Chattanooga office now located at 1111 James Building; Chicago office is now at 323-325 East 23rd Street, G. E. Tenney continuing as

Is the set ~~light~~ *heavy*?

PAD AND CALENDER—Padding and calendering are probably two of the most difficult plant operations to reproduce satisfactorily in the laboratory. However, after much experimenting over a period of years, the Rohm & Haas laboratory has developed both a pad and calender which closely simulate mill conditions. The pad, shown in the foreground, and the calender, shown in the background, are electrically operated with controlled regulation of speed, pressure, and heat. The calender may be used for both plain and hydraulic calendering as well as for back-filling.

SEMI-WORKS FOR THE INDUSTRY — Specially-designed padders, calenders, drying ovens, slashers, and other indispensable textile equipment make the Rohm & Haas Sales Service Laboratory a valuable semi-works for the entire textile finishing industry.

In this complete textile finishing plant in miniature, new products receive tests under conditions almost exactly similar to actual mill conditions. Here, customers' problems are evaluated and checked to find the best possible solution. Let our semi-works for the textile industry assist you with your operating problem.



★ LYKOPON
★ FORMOPON
★ PROTOLIN
★ RHONITES
★ RHOPLEXES
★ DEGOMMAS
★ TRITONS
★ RHOTEXES

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA, PA.

Manufacturers of Leather and Textile Specialties and Finishes . . Enzymes . . Crystal-Clear Acrylic Plastics . . Synthetic Insecticides . . Fungicides . . and other Industrial Chemicals

STEEL HEDDLE MFG. CO., Philadelphia, has just issued a combined broadside and wall hanger illustrating all the important harness equipment needed in weaving war materials. A list of most of the textiles being used for war purposes is also given, many of which are illustrated. The complete line of heddles suitable for each of the various fabrics to be woven is illustrated, as well as frames, selvage harness, reeds, combs, shuttles, and accessories. This broadside and wall hanger, which is designed to help mills in their needs of the day, has been gotten up in patriotic red, white, and blue.

manager; Dayton, Ohio, office is 246 Wiltshire Boulevard. R. P. Sharer is manager.

Terrell Machine Co., Charlotte, N. C., as result of the resignation of John J. Wilson who has been its sales manager for the last four years, has delegated to W. S. Terrell the duties of sales manager in addition to his work of production planning. M. H. Ridenhour will assist in sales work in the Charlotte area. Mr. Wilson will join the organization of the Sperry Gyroscope Co., Brooklyn, N. Y.

Hercules Powder Co., Wilmington, Del., has started an institutional advertising campaign asking for assistance and cooperation from other companies to aid in the mutual objective of winning the war. The series carries the slogan "Toward V-Day".

General Electric Co., Schenectady, N. Y., has elected T. F. Barton, of New York, and W. B. Clayton, of Dallas, Texas, as commercial vice-presidents. Both have been district managers in their respective territories and will continue as such.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has elected Edwin H. Brown as a vice-president in charge of engineering and development. Mr. Brown has been manager and chief engineer of the engine and condenser department for seven years.

EDWIN H. BROWN, newly elected vice-president of Allis-Chalmers Mfg. Co.

Worthington Pump & Machinery Corp., Harrison, N. J., has appointed Joseph T. Wright as manager of the Compressor and Tool Division at its Holyoke (Mass.) Works.

International Filter Co., Chicago, a pioneer in the field of water conditioning equipment, after 48 years under that name, has changed its name to Infilco, Inc., the first word of which was adopted as a trade mark over 10 years ago.

Osborn Mfg. Co., Cleveland, Ohio, manufacturer of industrial brushes and foundry moulding machines, in connection with its 50th anniversary, notes that 33 firms which were among Osborn customers in 1892, its first year in business, are still active Osborn accounts in 1942.

R. B. TUCKER, newly elected director of Pittsburgh Plate Glass Co.

Pittsburgh (Pa.) Plate Glass Co. has elected R. B. Tucker, director of its glass sales to the board of directors of the company, succeeding H. A. Galt of Akron, Ohio.

International Business Machines Corp., New York, has munitions contracts on hand and under negotiation which will amount to over $150,000,000.

Philco Corp., Philadelphia, Pa., has elected James H. Carmine as vice-president in charge of merchandising. Mr. Carmine has been with Philco since 1923.

Bailey Meter Co., Cleveland, Ohio, has added to its Field Engineering Staff the following: J. T. Elder and J. E. Wood to Atlanta; E. P. Nye to Buffalo; R. B. Pogue to Milwaukee; W. D. Hilborn to Houston; J. J. Wilber to Cleveland; C. E. Hicks to New York; J. R. Powell to Pittsburgh; R. V. Johnson to Chicago; W. D. Robinson to Boston; C. C. Holtzman to Philadelphia.

Manning, Maxwell & Moore, Inc., Bridgeport, Conn., is liquidating its Railway and Mill Supplies Division at Jersey City, N. J. This division has been conducted as a jobbing agency for the selling of supplies manufactured by other industries.

JAMES F. McNAMARA, mill products sales manager of International Nickel Co., New York, who has been elected a member of the board of directors of Lukens Steel Co.

Industrial Rayon Corp. has recently issued a booklet "Weaving Diseases—Their Causes and Preventives." Included are photomicrographs which show how broken filaments, knots, and other yarn imperfections impair the quality of woven fabrics. Also described and illustrated is Industrial's continuous process for spinning rayon yarn.

Young Radiator Co., Racine, Wis., to greatly increase production of war materials, has appointed a company War Production Coordinating Board headed by L. C. Pfost, plant superintendent, and Blendon DeMint, president of Young Local No. 37 CIO, UAW. Two additional board members will be selected—one from the ranks of the plant workers, the other from the office force. The board will study production-incentive plans and cooperate with military and Government officials responsible for speeding up the nation's production output.

Babcock & Wilcox Tube Co., New York, N. Y., has added James S. Anderson to the New York district sales office. Mr. Anderson was lately with Steel & Tubes Division of Republic Steel Corp.

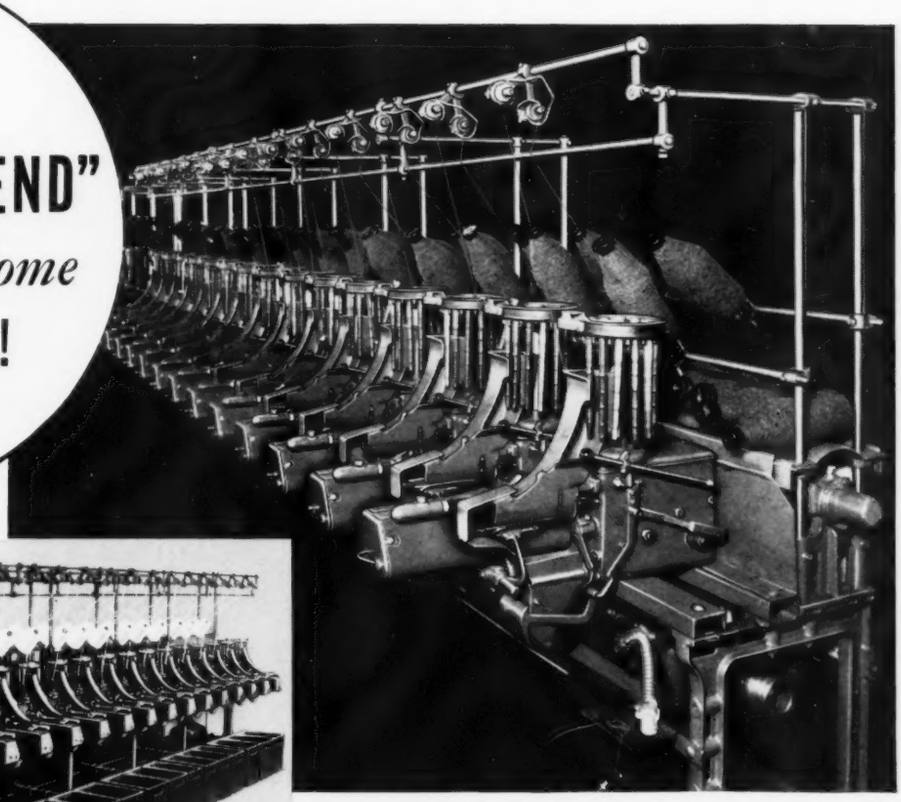
Hyatt Marks 50th Anniversary

Hyatt Bearings Division of General Motors Corp. marks this year the 50th anniversary of its corporate life. Pointing out that during that time the country has experienced two national emergencies and is now in another great war, it is distributing a picture titled "Faith of Our Fathers" and expresses the confident expectation that America and the United Nations will emerge more triumphant than ever.

The

"WEAVER'S FRIEND"

finds a New Home in the U.S.A.!



The Whitin-Schweiter Filling Winder is adaptable to all textile fibers. Units shown here running in Woolen Mill, winding from spools.

Unit adapted to cotton, winding from cones. Uniformity of wound filling is a big feature of this new machine.

FAFNIRS PROVIDE FRICTION-FREEDOM IN THE NEW WHITIN-SCHWEITER AUTOMATIC FILLING WINDERS!

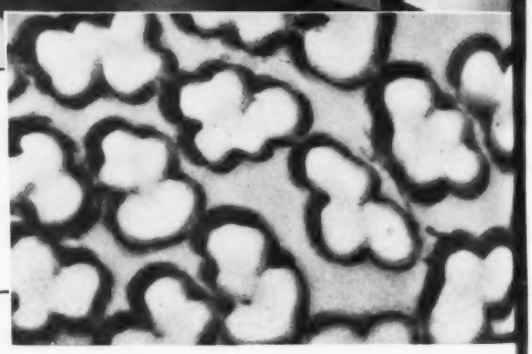
Swiss ingenuity, Whitin engineering knowledge and persistence – and friction-free Fafnir Ball Bearings make a new, completely automatic filling winder available to U. S. textile mills. When War seemed imminent, Whitin went to Switzerland and brought back working models and designs of the Schweiter Automatic Filling Winder. Then Whitin engineers rolled up their sleeves and went to work! Today, the successful Whitin-Schweiter Filling Winder is at work in many of the country's leading textile mills.

This new machine's automatic operation, high-speed efficiency and uniform output is securely guarded by a large number of Fafnir Anti-Friction Ball Bearings: Fafnir Self-Aligning Bearings on the main drive shaft; Fafnir Single Row Radial-Thrust Bearings and Fafnir Extra-Small Radial Bearings in each spindle assembly. The Fafnir Balanced Design means longer life for all three types. The Fafnir Bearing Company, Textile Division, New Britain, Conn. Atlanta . . Birmingham . . Boston . . Charlotte . . Dallas.

FAFNIR *Ball Bearings*

THE BALANCED LINE • MOST COMPLETE IN AMERICA

Precision Winding of *Acetate* Yarns on UNIVERSAL WINDERS



Photomicrographs of acetate yarn magnified 500 times. (Courtesy Wm. M. Grosvenor Laboratory, Inc.)

Each type of synthetic yarn, examined through the microscope, will show a characteristic structural formation, which will account for the difference in the way it is handled on the winder.

The Universal Precision Winder is flexible enough to wind all types of synthetic yarn, particularly the finer deniers which are now in greater demand. Special equipment is provided for the individual requirements of each type.

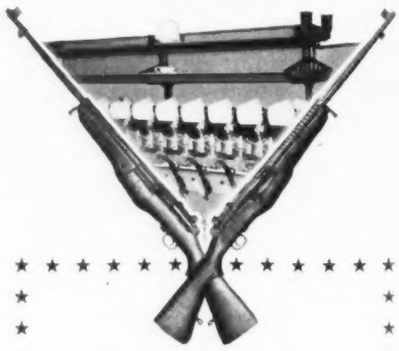
For example, because acetate generates static electricity, contact points are metal rather than porcelain. Acetate must be wound with very little tension, so it is by controlling pressure that the quality of the package is determined.

Maximum Traverse Length for Acetate Cones

Originally all cones of "artificial silk" were produced with the steep taper and 5″ traverse which were used for pure silk.

The Universal engineer found by experience that a cone with less taper gave better results with acetate yarn, particularly when the porcelain guides were replaced by metal. This cone eventually became standard throughout the rayon industry.

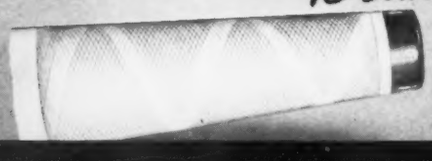
The length of traverse was increased from 5″ to 5¾″ for all synthetic yarns, but in recent years acetate rayon has been wound with a 6″ traverse. Cones can be wound with maximum weight without going to maximum diameters and high winding speeds.



Universal—manufacturer of precision machinery — aids defense by manufacturing precision parts for military equipment.

More Than 90% of All Synthetic Yarn Is Coned on Universal Precision Winders

SEESONA REG. U.S. PAT. OFF.



UNIVERSAL WINDING COMPANY

Providence Boston Philadelphia Utica Charlotte Atlanta

THE OVERSEERS' CORNER

PROTECTING TEXTILE PLANTS

A PETE & BILL DISCUSSION

"Let's go!" said Pete, reaching for his hat and coat. "We are supposed to have our pictures taken in 5 minutes."

"I think this whole thing is a lot of baloney," exploded Bill, as he started for the door. "The idea of putting up fences and floodlights around the plant, and requiring all employees to wear badges with their pictures. Why it's plain foolishness."

When they were outside, Pete replied, "In times like these we can't be too careful. Every ounce of production counts, and we must take every precaution in protecting that production. Why, think how easy it would be to wreck this mill if we leave it wide open."

"Wide open! Why it never has been wide open," said Bill. "I know every man and woman in my department, on all three shifts, and no stranger could come in without getting caught."

"Yes, but this is not a problem for just your department or mine, but is one for the whole plant," said Pete. "You have to remember that there are a lot of places in and around the mill where many people pass back and forth. Then there is the water supply, the power plant, and the electric system—they could be put out of commission if not protected."

"Let's go!" said Pete

"Not if the overseers and foremen are on the job," retorted Bill. "I still think I can protect my department without any help."

"Maybe so, but you've got other work to do," said Pete. "You can't afford to spend all your time playing cops and robbers."

How far should textile mills go in setting up protective systems?

Letters from Readers

Should Encourage Civilian Defense Jobs

"Volunteering for Civilian Defense" Pete & Bill, Jan., 1942

Editor, Overseers' Corner:

To the question in the January, 1942 issue, "Should workers take part in civilian defense?" I wish to state my views.

Yes, I think that workers should be encouraged to take civilian defense jobs. Bill would do a good turn if he would apply for such a job.

Bill made a remark that is one of the biggest faults of the people of the world today. He said that he could "take care of himself." Too many people have that idea and don't stop to help their fellow man. Bill complains about loss of sleep, but if a swarm of enemy bombers came over he might sleep forever if he were too sleepy (lazy) to get up.

In a mill village, where nobody lives except workers, who does he think would be air-raid wardens. I would hate to live on a street with Bill as air-raid warden. He would be too sleepy.

So let's let Bill sleep and get somebody else to serve.

HOMER J. CABANISS
(Alabama)

No Self-Glorifiers Wanted!

"Identifying Government Orders in the Mill" Pete & Bill, Feb., 1942

Editor, Overseers' Corner:

Tagging certain machines which are running Government orders may be worthwhile for distinction of personnel. But it is true that almost everyone has his chance to help Uncle Sam, and that everyone who has the true spirit of freedom is anxious to do his share.

I recently read a statement to the effect that it requires 18 workers at home to maintain one fighting man. That proportion makes me want to do more than my 5.55% to keep a man in a plane, behind a gun, or on a battleship. Too, I feel that most people in this country have the same loyal attitude—that is, except those two-faced people who boast of how many Defense Bonds their organization bought, but are so unwilling to make a few sacrifices that they make all kinds of trouble and frequently stop sorely needed production by strikes. If they are so patriotic

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CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for when published without regard to length. We use letters (not over 200 words) discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks which are published (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater than specified length may be given consideration as articles. If these pages interest you —contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42nd St., New York.

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why don't they buy bonds and do their work in an earnest and sincere manner.

He who does good or professes to do good, and then advertises the fact that he has done it is indulging in self-glorification—which is recognized as one of man's most degrading, dishonest, and disgusting practices. But such people are not half as degraded as they will be if we lose the war and are forced to live under Hitler's system—all because they are not willing to do their share.

LAMAR FOGEL
(South Carolina)

Pete Has Something on the Ball

"Identifying Government Orders in the Mill"
Pete & Bill, Feb., 1942

Editor, Overseers' Corner:

As usual Pete "has something on the ball." It seems to me that the idea of marking the machines that are making Government goods is an ideal way to arouse patriotism in the workers, as well as to create a spirit of enthusiasm and pride in the work they are doing.

I am thoroughly in accord with Pete's idea that the other employees instead of being jealous of their fellow workers will be looking forward to the time when they, too, can run government work.

I say without hesitation that it should be an advantage to both employer and employee to identify machines on Government orders.

K. M. S.
(Virginia)

Whose Safety Record?

Editor, Overseers' Corner:

I am thoroughly disgusted with the general acceptance of prevalent conditions by many supervisors in various mills, and more especially with the fact that when bad conditions are pointed out, nothing is done about them.

It has been my experience to point out to various men in authority things that would do much toward improving their safety performances and would be of great benefit to them in the reduction of lost time accidents, and then to have no attention paid to the suggestions. On more than one occasion the failure to change the condition pointed out has resulted in a serious accident.

In the investigations which followed such accidents, the insurance inspector came in, analyzed the situation, and usually pointed out the identical things that had been pointed out previously. What kind of supervisors would you call such men who are entrusted with employees' safety but who can't be bothered with such *minor* things?

In plain words, there should be a genuine house-cleaning of supervisors who can't even give consideration to suggestions for improving working conditions and at least find out whether or not they will work. No plausible safety suggestion should be rejected without a trial.

"GEORGIAN"

Bill Mentally Asleep

"Volunteering for Civilian Defense"
Pete & Bill, Jan., 1942

Editor, Overseers' Corner:

Patriotism does wonders to some, but Bill seems to be mentally asleep, willingly; but if he doesn't wake up he may be put to sleep physically, and eternally. Of course, none of us likes or wants a bomb, but one dropped on Bill's home or workshop unexpectedly may be his doom if he doesn't awaken from his mental lull. But he being as pessimistic as he is, what else is to be expected?

Pete appears to be leading his people to think and act progressively and to be making some preparation to meet emergencies, while Bill stays home and reads his paper or favorite "blood and thunder," enjoys his pipe and then broods over his self-inflicted troubles, and hardly knows his next door neighbor.

ELMER VINSON
(Virginia)

Overseers' Practical Helps

Grinding Picker Beater Blades

Our mill used to send two-blade picker beaters out for grinding, to the tune of $10 to $20 each. Recently, however, local machine shops have become so clogged with defense work that they are unable to continue this work. So the management put the problem in the lap of the machine shop at the mill.

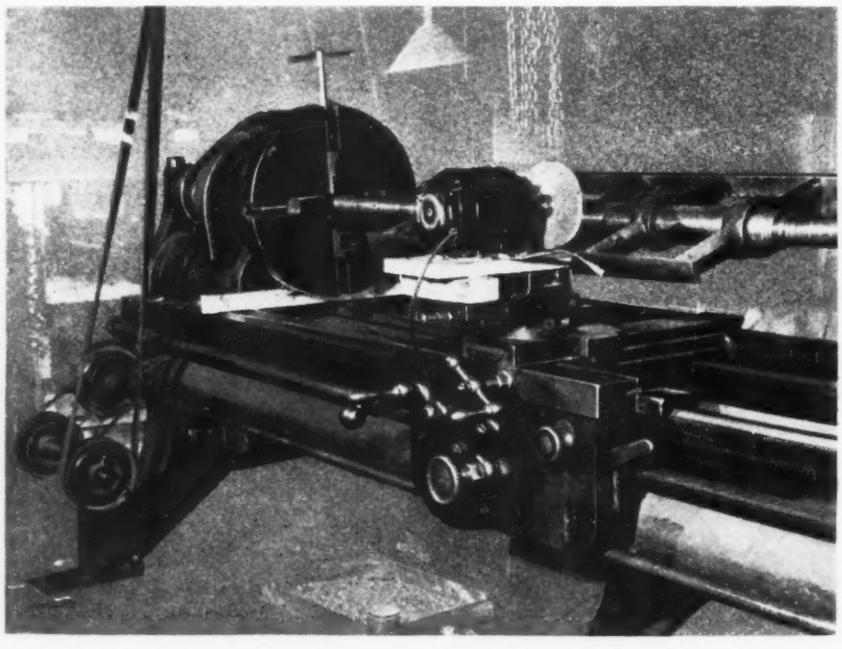
After the desired angle on the beater blades had been ascertained, a visit to the junk pile and a little experimentation produced the result shown in the illustration. Blades are now ground at the mill by use of a lathe and an electric motor and grinder mounted on the carriage.

The grit of grinding operations does not improve the operation of a lathe, but the job is necessary and the method works.

H.A.L. (*Massachusetts*)

Breaking in New Rings

Under the rush of present business conditions, mills which can do so are buying new machinery and replacing worn parts on older units, particularly the rings of spinning frames. When new rings are installed there is a tendency in some mills, especially with the present emphasis on increasing output, to rush them into production without properly breaking them in. Though



Grinding picker beater blades

it may not be immediately apparent, as pointed out in a recent issue of *The Traveler*, published by Victor Ring Traveler Co., this practice of putting rings into production immediately often reduces the service life of the rings appreciably, and is the source of later troubles that frequently are blamed on the traveler.

The breaking-in period for rings should extend about ten weeks, and during this time travelers should be changed more frequently than usual and the frames run at reduced speed. This will prevent grooving the ring, and will run-in a smooth, hard polish that will pay big dividends over a period of years. The cost of the extra travelers used at this time is negligible in comparison to the overall savings.

The following method of lubricating new vertical rings during the break-in period in order to get them running at full efficiency as quickly as possible is being used successfully in several mills: Mix a small quantity of flowers of sulphur with the grease normally used to lubricate the rings, about ¼ lb. to each 2 lb. of grease, and work it in thoroughly to avoid lumps. The sulphur acts as a mild abrasive and helps to run-in the bearing surfaces of the ring to a brilliant polish. Run one doff (or more if necessary, depending on the condition of the rings) with this mixture, then thoroughly clean the rings, and afterward use regular grease. The travelers will work smoothly in much less time than normally is required to polish the rings.

Laboratory men have checked the sulphur mixture to see if it can have any injurious effect on rings, traveler, or yarn. The report is that the mixture is quite harmless, and that since only a very mild abrasive action is desired, the sulphur is a good choice. No coarser abrasive should be used, because the great speed of the traveler on the ring would result in excessive wear on the bearing surfaces.

Breaking in rings is just another job in the mill where an ounce of prevention is worth a pound of cure. Break them in gently, and they'll serve you well and faithfully for many years.

Removing Broken Bearing Studs

Cap bearings studs that have broken off are sometimes difficult to remove. If the head breaks off above the cap or part way in, the studs can be readily removed with a pair of pliers. However, if a stud breaks off down in the bottom bearing stand, defying removal at the machine, the bearing must be removed in order to take out the broken stud.

If the stud resists movement by forcing or tapping a pin-punch against the upper exposed surface, drill a pilot hole down through the center of the stud, the drilled hole to be about half the diameter of the stud. Place a larger drill in the drill press and put on slow speed. Hold the bearing steady and press down with considerable force. The large drill, instead of cutting, usually will jam in the pilot hole and screw the stud outward through the bottom of the bearing, especially on loom crankshaft or driveshaft bearings.

At times the so-called "easy-outs," if used, break or damage threads, but the above method, when successful, prevents such damage.

H.E.W. (*Pennsylvania*)

Returning Waste in Carding

Analysis of results shows practice does not produce inferior product

By GEORGE J. WAKEFIELD

CARDING OVERSEERS frequently blame the practice of putting back soft wool waste from the carding machines and mules for most of their carding difficulties. They state that most of their blend consists of waste through repeatedly returning soft waste to its own type of blend, and in the course of time their blend will be almost 100% waste. Then, overseers in other mills which manufacture branded goods never put waste back for fear of deteriorating the quality.

Opinion as to the detrimental effects, or otherwise, of returning waste to carding blends is well-divided. However, the writer believes that the systematic return of waste is good practice and does not produce inferior products or cause much of the trouble to which it is attributed during carding.

Table I illustrates what actually takes place in a blend, or mixture, of 70% of wool *A* and 30% wool *B*, and the amount of waste coming back from the carding machines and mules is assumed to be 20%. This is very high, but it is an actual experience of the writer's.

Each blend from No. 1 contains 70% of wool *A* and 30% of wool *B*. The putting back of waste does not affect this ratio as it is supposed that the waste is of the same proportionate composition as the blend from which it came. Refering to wools *A* and *B* that have never been through the process of carding, we observe that after the first blend the amounts in the subsequent blends become stabilized at 56% wool *A* and 24% wool *B*. It will be noticed that after blend No. 2, the waste from wools *A* and *B* that have been once through the card will become fixed at 11.2% and 4.8% for all ensuing blends. Referring to wools *A* and *B* that have passed twice through the carding process, it will be seen that after blend No. 3 their waste weights become 2.24% and 0.96% respectively. The difference between any blend and its immediate predecessor becomes rapidly less and less as we continue putting down blends. Between any blend and its predecessor, it is diminishing in geometrical progression with a ratio of 1 to 5 as is indicated by the percentage figures in Table I.

In practice, the blend is stabilized after the third blend for all useful purposes; for in the fourth and following mixtures the differences become negligible. Assuming all the fibers to have the same length and thickness and density, only eight fibers out of every 1,000 in the fourth blend will have come from the original blend, and at the sixth blend only 3.2 fibers out of every 10,000

TABLE I. Amounts of waste in pounds recarded

Blend	Original Blend Never Through Card		Waste Once Through Card		Twice Through Card		Three Times Through Card		Four Times Through Card		Five Times Through Card		Difference from Immediately Preceding Blend	Total Weight
	A	B	A	B	A	B	A	B	A	B	A	B	Percent	
No. 1....	70	30											—	100
No. 2....	56	24	14	6									20.00	100
No. 3....	56	24	11.2	4.8	2.8	1.2							4.00	100
No. 4....	56	24	11.2	4.8	2.24	0.96	0.56	0.24					0.800	100
No. 5....	56	24	11.2	4.8	2.24	0.96	0.448	0.192	0.112	0.048			0.160	100
No. 6....	56	24	11.2	4.8	2.24	0.96	0.448	0.192	0.0896	0.0384	0.0224	0.00967	0.032	100

will be from the original blend. Hence, we observe that the putting back of waste is not deteriorating the blend appreciably.

Assume that a blend consists of 70% wool *A* and 30% wool *B* as in the previous case, but that the soft waste returned is not in the proportion of 70 to 30 because of the fact that the wool *A* is a better material and only 10% of it is lost as waste. Wool *B* is an inferior wool and loses about 20% in waste. It is perceived again that the difference between any blend and its immediate predecessor is rapidly diminished; so much so, that what was stated previously in regard to Table I applies here too, viz—that after the third blend the matter of waste in a mixture is, from a practical point of view, negligible.

Dyeing Vats by Pigment Padding

Offers advantages of consistent results, level shades, and simple matching

By W. E. HOPKINS

POOR PENETRATION of vat dyes and the resulting uneven dyeing is a difficulty which is encountered at some time or other by every dyer who uses vat types; and in the last few years, exacting conditions in the trade have compelled dyers to pay particular attention to this problem. The pigment padding process was originally introduced as a means of obtaining well-penetrated shades on tightly woven materials, and it yielded results which were far in advance of ordinary jig-dyeings. However, it offered other advantages, which resulted in its present use for producing level shades on many types of material.

In applying vat colors by the pigment padding method, factors that require attention are: (1) satisfactory pretreatment and drying of the materials; (2) correct choice of padding oil; (3) careful selection of dyes; and (4) padding mangle.

Faulty preparation frequently is responsible for faults which appear only after dyeing; therefore, the preparation of a highly absorbent material is of great importance. Processes of preparation are quite normal, and usually consist of singeing and desizing; washing and kier-boiling; washing, bleaching, scouring, and washing; drying and mercerizing; washing thoroughly and tentering. In general, light-weight fabrics should be processed in rope form, and heavier fabrics should be put through in open width.

Padding oils should possess properties of high efficiency of wetting out fibers over a wide temperature range; freedom from "cracking" during padding and from any tendency to cause aggregation of minute dye particles; ability to hold dye particles in perfect suspension for long periods; stability to acids and alkalis; and comparative freedom from frothing during padding.

Successful padding can be achieved only by using vat dyes in such a physical state that they form highly dispersed suspensions in the weak padding oil liquor, and do not settle out or form aggregates under wide variations of temperature.

It is recommended that the padding trough be of not over 5 gal. capacity; fitted with a closed steel coil; and connected to a feed tank fitted with a stirrer and also with a steam coil. An expander in front of the mangle should prevent creasing, and the mangle can run at speeds of 15 yd. per min. upward. Temperature of padding liquor can vary from 140°F. upward to just below boiling point. Heavy goods should be padded at the higher temperatures. Great care is necessary that a uniform temperature be maintained throughout the padding operation.

TABLE I

Comparison of vat-dyeing methods on piece goods

	Pigment Padding Method	Leuco-Vat Dye Padding	Jig Dyeing	Dyeing or Padding
Shades	All depths	Lt. shades	All depths	Lt. Shades
Levelness	Very good	Moderate	Poor	Excellent
Wash Fastness	Very good; but longer reduction improves	Poor, but improved by further reduction	Excellent	Fair; improved by reduction, oxidation, etc.
Penetration	Good–excellent	Moderate	Unsatisfactory	Excellent
Production	Cont. padding	Continuous	Not continuous	Cont. padding
Advantages and disadvantages.	Consistent results; production high; simple matching; greater choice of dyes; better tone	Results mediocre; only pale shades satisfactory; small dye selection; unions difficult; not fast	Does not give consistent results; levelness and penetration poor in pale shades of many dyes	Only satisfactory for pale shades, but excellent results are obtained with most of those

TABLE II

Comparison of results in dyeing (A) cotton and viscose raw staple; (B) mercerized cotton and viscose yarns; (C) yarns on cheeses, bobbins, cones, warps

	Pigmenting Process	Dyeing Process
In open vessels (A) and (B)	Pigmenting occurs evenly throughout on wetting out, giving level shades; no retarding agent required; excellent penetration	Shades are not level; retarding agents are required with many dyes; penetration is of an inferior order
In circulating machines (A) and (B)	Especially recommended for pale shades; even pigmenting without filtration and reduction on fiber result in even shades; best for pale yellow-green and blue-violet	Presents difficulties in obtaining level dyeings of pale shades with many dyes, for which retarding agents are required
In open or closed circulating machines (C)	Especially recommended for pale shades, particularly in mixtures; good levelness and penetration without retarding agents	Level pale shades obtained with difficulty, especially in mixtures, for which retarding agents are necessary

Abstracted from *Journal of the Society of Dyers and Colourists*, December, 1941.

LOOMFIXERS' MANUAL

COTTON SECTION—Part II, Chapter I—(Continued)

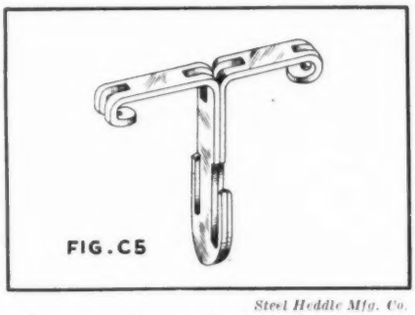
By IVAR MOBERG

Loom Harnesses

TO OBTAIN BEST RESULTS with flat steel heddles, it is important that heddle rods be of high-carbon tempered steel, with smooth and well-rounded edges. Soft steel rods have a tendency to bend under the strain and to remain in bent position, likely to catch on adjacent rods and cause serious break downs.

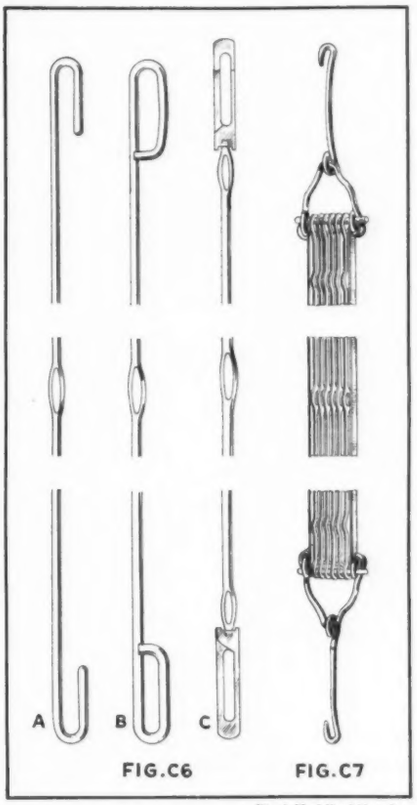
For ordinary light cotton fabrics the writer recommends a continuous sliding heddle rod hook arrangement using the sliding hook shown in Fig. C5, made for either single or double rods. Although it is especially designed for rayon, it should be equally well adapted for light cotton goods. The sliding hook just referred to has a large contact surface with the heddle rod and therefore slides very easily, taking the proper position automatically so that there is no bunching up of the heddles on either side of the hook. This forms a fine harness combination.

With the use of steel heddles it also becomes important to use the right type of mending heddles. Some mills use ordinary heddles on which the end loops have been cut open. This, however, is very poor practice as the cut end loops rarely stand up under the strain, but open up and come free from the heddle rod, causing thread runs in the fabric. It is much more practical to use regular mending heddles similar to those shown in Fig. C6. Of the three types of mending heddles shown, *A* is not practical because the end hooks have a tendency to straighten out and catch on adjacent harnesses. *B* is somewhat more suitable as the double hooks have greater resistance to straightening out and are not so likely to catch on adjacent harnesses. Both *A* and *B* have a fault in common—a tendency to stick on the heddle rod if not carefully put on. They do not line up with the other heddles as the end hooks are not central with the heddle.



Steel Heddle Mfg. Co.

Fig. C5. Sliding heddle rod hook



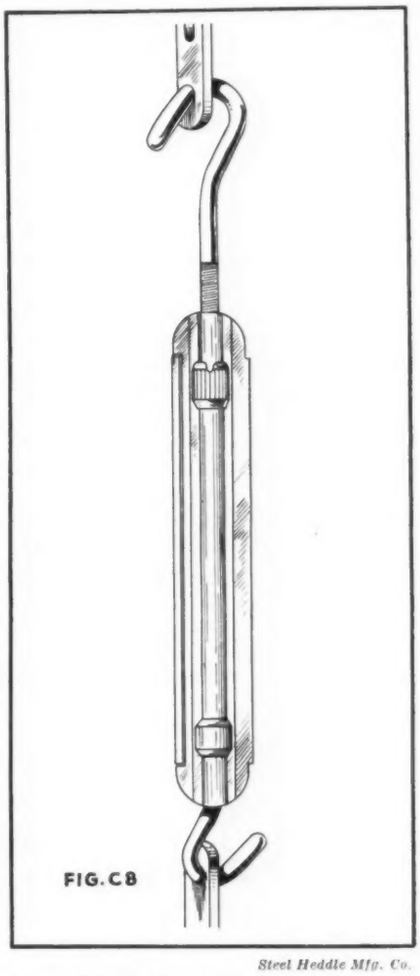
Steel Heddle Mfg. Co.

Fig. C6. Mending heddles used for replacing broken or missing heddles
Fig. C7. Selvage heddles

Type *C* is unquestionably the most practical mending heddle. It is easy to put on and the end loops hold it securely on the rod while at the same time giving ample freedom for lateral movement. The end loops are also central with the heddle, placing it in line with the regular heddles. Mending heddles of any type should be promptly removed whenever the harnesses are redrawn, because they are a temporary means of repair only.

Selvage heddles are used in conjunction with tape selvage motion to produce tape and center selvages. Fig. C7 shows a set of selvage heddles. They are considerably longer than regular heddles and come in various lengths. The heddles should be long enough to work between the regular harnesses without permitting the top and bottom eye couplings to touch the harness frames. The outside solid heddles, being slightly shorter than the usable heddles, rest against a shoulder on the short heddle bar, which insures proper play and freedom of usable heddles. These selvage heddles, being very flexible, reduce much of the breakage of selvage threads so common on most of the fabrics being woven.

A fine harness adjustment, less than the spacing of the holes in the harness



Steel Heddle Mfg. Co.

Fig. C8. Adjusters for relocating harnesses

straps, is often desirable. The common practice in this case is to make this adjustment by screwing in, or out, the harness eyes or hooks. However, this is a poor method because sooner or later the eyes or hooks are pulled out of the wood, or split the wooden frame members. To eliminate this, adjusters shown in Fig. C8 are used. These adjusters have a capacity of 1¾ in. adjustment, which is ample under any condition. The knurled nut can be turned with the fingers and is self locking so that there is no need or wrenches or pliers in making adjustments. The bottom hook, or eye, should not be directly connected to the harness hooks, but should be equipped with a short leather or fiber strap to eliminate wear at the connection.

Steel heddles, to give best results, must be kept in perfect condition at all times. Before they go to the drawing-in frame they should be thoroughly inspected. Rusty heddles never give a good performance, so all rusty heddles should be removed and promptly discarded. The heddle rods and hooks should be carefully checked for wear at the point of contact, and if they show excessive wear they should be replaced. It requires only a few minutes work to replace them when out of the loom, but it becomes a tedious job to do so when the harnesses are in the loom. In addition, it is almost impossible to do any repairing in the loom without dirtying the cloth or otherwise making imperfect cloth. It is preferable to apply a very light coat of lubricant to the heddle rod, but it must be light, or none at all. The danger is that the oil will work itself down on the heddles during weaving and form dirty streaks in the cloth. This is a serious defect and extremely difficult to remedy; in fact, the writer knows of no way to remedy it other than to keep on weaving until the warp yarn has cleared the heddles of oil.

The wooden member if badly cut by the harness hooks must be replaced, as a broken wooden frame member is rather difficult to replace in the loom. It is also very important that the position and spacing of the harness hooks be checked for correctness. The harness connection at both top and bottom must be perfectly vertical, and not angular. Drilling new holes for repositioning the hooks when the harnesses are in the loom is bound to be a poor job, as it is very difficult to drill the holes straight.

The storing of the steel heddles must be in a perfectly dry room to prevent them from rusting.

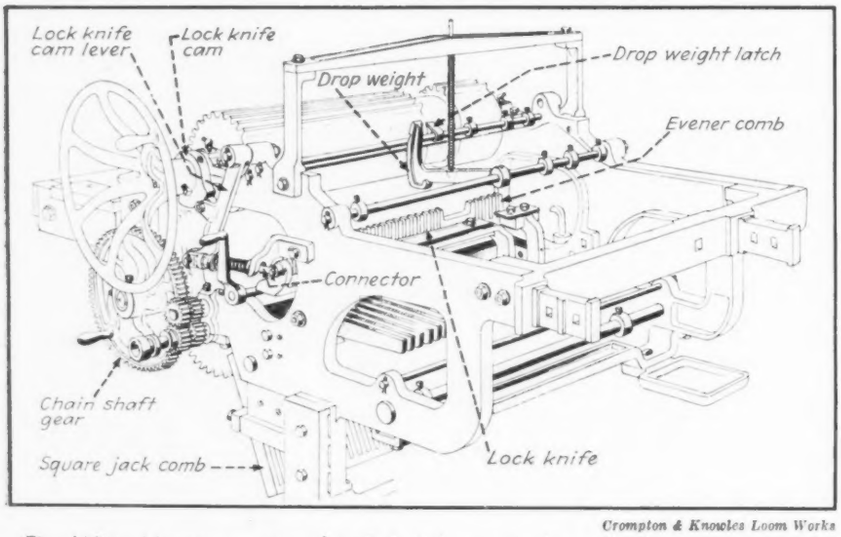
WOOL SECTION—Chapter XIII—Continued. —Harness Motions

By EUGENE P. SCHREMP

TEETH OF THE COMB keep the levers in line with the pattern and box chain. If one or more teeth in an evener comb are broken, the comb should be removed. To remove an evener comb, some method of lifting all the levers must be employed. Occasionally, loom-fixers remove all the vibrator levers, but this practice requires considerable time and is not necessary. This method is not recommended unless the head motion is badly worn and the fixer intends to overhaul the complete head motion.

One of the best tools for lifting the vibrators can be made from a piece of iron pipe having an inside diameter of 1 in. Measure the distance between the inside and outside vibrator levers and cut a piece of pipe to equal this length. Mark a straight line the length of the pipe and cut completely through with a hacksaw. When the pipe is cut, there will be two U-shaped pieces that can be used. Grind the inside concave surface so that it will just fit over a bar of chain rolls. By placing the piece of pipe over a bar of chain and turning the chain cylinder, the pipe will go under the runs of the levers and lift them so that the ends of the levers will not rest on the evener comb. A fixer will find that he will be repaid for the time required to make such a tool.

To remove an evener comb from the head motion of a W 2- or W 3-Crompton & Knowles loom as illustrated in Fig. W23, first take out the box vibrators. This will save time in removing and replacing the comb. The capscrews that hold the lower square jack comb should be removed and the comb dropped down on the jacks. Make certain that the heel shell is in place and then lift the harness levers with the tool made from a pipe as described. Remove the lock knife cam lever and connector. The harness and box evener bar should be removed from the comb. Then, turn the bottom cylinder so that there is room to remove the two capscrews that hold the comb to the frame. After the capscrews have been taken out, the comb can be removed through the opening at the back of the head motion.



Crompton & Knowles Loom Works

Fig. W23. Harness motion for C & K looms, jacks and vibrators removed

On the newer type looms, the combs are machine-cut and do not require fitting. On the older type, it is usually necessary to raise or lower the comb until the proper clearance between the vibrator gears and the bottom cylinder is obtained. However, the clearance between the lock knife and the ends of the lower levers is also changed by variations in the height of the comb.

Before removing a comb from the older type looms, the fixer should note the clearance of the lock knife and the vibrator gears. When replacing with a new comb, a pair of calipers should be used to measure the distance between the evener bar and the fitting strip on the legs of the comb. These strips should be fitted to compare with the removed comb, provided the adjustment was correct; otherwise, the head motion will not function properly unless the height of the comb is regulated correctly.

QUESTIONS & ANSWERS

Yarn for Cut-Presser Work

Technical Editor:

We are inclosing a sample of yarn which has been sized, and we would like to know if you can tell us what has been used on it in this process and why it was applied.

Another thing, we would like to have your advice on is: We are doing cut-presser work on a 22-gage Campbell & Clute machine, using 11½-grain yarn Amsterdam system. Is that the right size yarn to use? (8845)

The exact composition of the sizing on the yarn is difficult to determine without chemical analysis. It is undoubtedly an oil emulsion used to condition the yarn while knitting. This is sometimes done as it prevents the yarn from drying out and greatly facilitates the knitting, helping to prevent dropped stitches, press-offs and cut holes. Suitable lubricants can be obtained from various manufacturers of textile chemicals.

An 11½-grain yarn on the Amsterdam system is equivalent to approximately single 9s cotton. Although a fair range of yarn sizes is possible on Campbell & Clute spring-needle machines, it is probable that for 22-gage, this size would be about the heavy limit for good knitting.

Streaky Sections in Blanket Fabrics

Technical Editor:

We are inclosing a piece of unfinished blanket fabric on which we have marked several streaked sections where the filling yarn seems to be much softer than in the balance of the fabric. We will appreciate your opinion as to whether or not a variation in the twist on the spinning frame is responsible for this condition and, if so, what suggestions you have for controlling it. (8836)

On first examination it appeared the streaks were caused either by uneven yarn or uneven twist. Tests show there is some variation in the average weight between streaked and unstreaked sections. However, it is not believed this is sufficient to cause serious trouble on cloth of this type.

There is considerable variation in weight for very short lengths; this shows up in the fabric as thick and thin places. This defect is caused by improper carding, light places in the roving taking more twist in spinning than heavy picks. A condition such as this will probably not have a serious effect on the appearance of the finished blanket, but it does indicate that the cards should be gone over, to eliminate poor spinning, lowered production, and excessive waste.

When yarns of both streaked and unstreaked sections were removed and examined, there seemed to be a difference in the appearance, color, and feel of the yarn. Also, the streaky portions begin and end suddenly, and are about the width of the number of picks which would come from one filling bobbin. It is our opinion the real cause of the streaky sections in this cloth is mixture of different lots of filling, or of roving of two lots being spun together. We recommend that you make a study of these possibilities and take steps to prevent their occurrence.

Weaving Endless Belts in Three Ways

Technical Editor:

I am interested in finding out how woven endless belts are made. What I have in mind are the narrow endless woven belts used on the feed end of a flat work laundry mangle or ironer. I would like to know the weave, type of loom woven on, and the method used in making the belts endless. (8822)

Generally speaking, there are three types of endless woven belts. One is made from a roll of single ply webbing or tape, and the belt is formed by winding layer upon layer in a rotary manner until the required thickness is obtained. Then the entire assembly is sewed through and through and round and round on a common sewing machine.

The second type can be formed by cutting an 8 to 12-in. section of a double fabric such as pillow casing, and folding in the edges from either side until the desired width is obtained. Like the first style mentioned, this too is sewed through and through and round and round on a common sewing machine.

However, the belt you probably refer to is the type made as follows:

From a single end supply of yarn, a skein is made of the desired number of ends, and of a diameter equal to the required diameter of the finished belt, plus an allowance for take-up in weaving. This skein, or warp, as it is now called, is leased and placed in the loom. The loom is equipped with open-top reeds, special open-eye heddles, and a special take-up mechanism by which the warp is kept at the desired tension throughout the weaving process.

As the weaving operation progresses, the woven portion eventually arrives in back of the heddles. The loom is so constructed that when the weaving of the belt has progressed to this point, the shed may be reduced, a smaller shuttle inserted, and the swing of the lay greatly reduced. After progressing as far as possible in this manner, the belt is removed from the loom and finished by hand. Naturally, the interlacing employed must be simple.

Shiners in Skein of Thrown Rayon

Technical Editor:

We have recently experienced in one of our lots, which consists of 75-den. viscose increased to 40 turns, places where we find shiners, or unspun places in the yarn. These places are intermittent in the thread and consist of about ⅛ to ¼ in. lengths. Inasmuch as this lot was thrown in the conventional manner, we cannot understand or explain this defect. We are sending you herewith one skein taken from this material which we wish you would examine and let us have your opinion as to just what is causing this trouble. (8852)

Tests of the sample skein submitted show a total twist deficiency, which indicates that your trouble is caused by something intermittently slowing down the twisting spindle. Parts of the yarn test accurately, but just before the shiners the twist decreases until it is a matter of only a few turns at the shiners and then the twist gradually increases until it approximates 40 t.p.i.

It could be that there was some equalizing of the twist from the shiners to the satisfactory lengths since the yarn was twisted, but the fact that the total turns based on 20 yd. is deficient clearly indicates something was interfering with the proper revolving of the twisting spindles.

It is impossible to say from an examination of the yarn what caused this condition, but one of the most likely possibilities is that of an improperly or insufficiently lubricated twisting spindle. This is indicated by the length between shiners and twist irregularities. Of course, it could be a slip caused by the spindle drive, waste on the spindle, abnormally slack belt, bent spindle, out of balance bobbin, etc.

FREE FOR THE ASKING

Readers interested in literature reviewed on this page may secure copies by writing to Textile World, 330 West 42nd St., New York, giving their company connection, title of item desired, and date of issue in which it was reviewed.

Practical packaging information and helps in saving of time and space are described in two booklets entitled *How to Seal Corrugated Shipping Boxes*, and *How to Stack and Load Corrugated Shipping Boxes*. These booklets are issued by Hinde & Dauch.

Control and priority established by the War Production Board and an index of various commodities on which M, P, L, and price schedule numbers is given and discussed in a bulletin entitled *The Priorities System as Related to the Chemical Industry*, issued by the American Cynamid Co.

Safety stretching steam capacity is the subject of a booklet which describes the checking of boiler conditions. The booklet entitled *How to Safety Stretch Steaming Capacity* is issued by Bailey Meter Co.

Acid-proof pipe as used for handling corrosive acids and chemicals is described in a booklet, along with specifications as to size, weight and type, entitled *Acid-Proof Pipe Fittings* which is offered by The U. S. Stoneware Co.

Controlled cyclonic cleaning by means of a swirling column of air to prevent lint accumulation during the roving, spinning, and twisting operations is the subject of an article in the February issue of *The Swirling Column* published by The American MonoRail Co.

Slide rule selector for electricians and plant maintenance men to guide in the selection of the proper type of motor for industrial applications is available. This motor and control Electric Drive Selector, SA-714, can be obtained from Westinghouse district offices and distributors.

Cleaning methods for cleaning heddles and loom harnesses, spinning rings, slasher drums, etc. are issued in pamphlet form entitled *A Digest of 39 Essential Maintenance Jobs*, and offered by Oakite Products, Inc.

Stretch during slashing of all viscose rayons is the subject of a discussion contained in the *Rayon Warp Sizing Specialist*, published by Charles B. Johnson Machine Works.

Electric thermometers, photoelectrically balanced recorders, indicators, controllers, and recording controllers are described in Catalog No. 1101 G issued by C. J. Tagliabue Mfg. Co.

Looms for weaving war time fabrics and a table of capacity of Draper looms to weave duck are contained in the March issue of *Cotton Chats*, published by Draper Corp.

Stainless steel as used in dye machines, especially package dyeing equipment, is the subject of the *Electromet Review* for March, published by Electro Metallurgical Co.

Check chart for determining the operating efficiency of Zeolite in water softener units enables a mill to determine if their equipment is operating efficiently. This check chart is offered by The Permutit Co.

Pressure recorders in ranges from 1 in. of water to 20,000 lb., along with a complete description of the various types of pressure measuring elements are described in a 32-page catalog 22-A issued by The Foxboro Co.

Prolonged service from industrial rubber products is covered in a number of booklets recently issued. Four of the series treating belting are as follows: No. 1 *Transmission Belting*, No. 2 *Conveyor Belting*, No. 3 *V-Belt Drives*, and No. 4 *Belt Salvage*. These are of vest-pocket size and issued by B. F. Goodrich Co.

Door control—how to speed war production through efficient materials handling with automatic door opener and door closer equipment is the subject of a 4-page folder *The Phantom Doorman*, issued by The Yale & Towne Mfg. Co.

Interchangeable ball bearings for replacement in machinery is the subject of a discussion in Booklet R, published by New Departure Div. of United Motors Service, Inc.

Electric speed indicator for use with the Reeves variable-speed transmission, Vari-speed motor pulley and Motodrive is discussed in a folder entitled *Reeves Electric Remote Speed Indicator* issued by Reeves Pulley Co.

Scientific instruments are listed and their prices given in catalog D-111, issued by Bausch & Lomb Optical Co.

Gages, gage testers, and accessories are described in a 64-page "Ashcroft Gage Book," issued by Manning, Maxwell & Moore, Inc.

Steel bars, plates, sheets, tubing, etc., in more than 11,000 different types, sizes, and shapes normally carried in stock for immediate shipment are listed in a 268-page catalog issued by Joseph T. Ryerson & Son, Inc.

Applications of laminated shims are discussed in a booklet issued by Laminated Shim Co., Inc.

Standard covers for ball and roller bearings are described and illustrated in bulletin No. 11-C, issued by R-S Products Corp.

Greater production and economy with the Wildman multiple-feed rib machine is the subject of a pamphlet issued by The Wildman Mfg. Co.

Feeder voltage regulators and their problems are discussed in *Regulator News* published for February by Allis-Chalmers.

Clothroom speed-up is the subject under discussion in an article describing the importance of duplex shearing and rolling machines and brushing machines, as contained in *The Clothroom Spotlight*, published by Hermas Machine Co.

Cutting staple fiber in lengths from flock to 8 in. is described in bulletin No. 42-FC, issued by F. J. Stokes Machine Co.

Wet processing and finishing machinery is described in a series of leaflets suitable for reference purposes. Such equipment as batch cloth washer, carbonized equipment, dyeing machinery, soaping machines, etc., are described in these leaflets offered by Riggs & Lombard, Inc.

Variable speed drive control as used with industrial machinery is covered in a 16-page booklet entitled *More Output for Defense*, issued by Reeves Pulley Co.

Special belts, such as those intended for high-speed work, special endless belts, round endless belts, V-belts, etc., are described and their special applications listed in the 32-page booklet entitled, *Special-Purpose Belts*, issued by L. H. Gilmer Co.

Rayon staple mixes in place of all wool, as suggested by the War Production Board, is the subject of discussion in *Davis & Furber News* for February, published by Davis & Furber Machine Co.

Protective lighting, such as is used in illuminating mill properties, is the subject of a folder entitled *Plant Protection Begins With Floodlighting*, offered by the Goodrich Electric Co.

Thread guides and the properties desired of guides for textile use is discussed in a booklet entitled *Facts About AlSiMag 192 Thread Guides*, issued by American Lava Corp.

Water treatment as required by textile mills is covered in Bulletin 201 entitled *Pressure Filters*, Bulletin 303, *Hot Process Water Softener*, and Bulletin 307, *Zeolite Water Softeners*, issued by Graver Tank & Mfg. Co.

Automatic lubrication for machinery, and fourteen reasons why it is more efficient, are discussed in a leaflet entitled *Automatic Lubrication*, issued by Bijur Lubricating Corp.

Varnished-cambric fabric used as an insulator in preparing electric cable is discussed in Bulletin No. 1799 entitled *Varnished-Cambric Cable*, issued by General Electric Co.

Air compressors, diesel engines, steam-jet ejectors, and vacuum pumps are covered in a series of bulletins issued by the Worthington Pump & Machinery Corp.

Fluorescent lighting price list of Day-Brite lights, has been revised. Price List No. 114EL-1 is now offered by Day-Brite Lighting, Inc.

NEWS OF THE MONTH

Textile Research Goes All-Out for War

Textile research has enlisted for the duration. At a meeting of textile association officials, under the auspices of the Textile Research Institute and the Textile Foundation, held at the Roosevelt Hotel, New York, April 7, a program was devised to step up the tempo of textile research to meet the new problems arising from war shortages of materials and labor.

The primary outcome of the meeting was the decision to set up a Textile Research War Council, in which all interested groups will be represented. The function of this council will be to clear textile research problems involved in the war emergency, and to take steps toward the immediate solution of those problems.

Representing the Textile Research Institute at the conference were F. S. Blanchard, president, Dr. R. E. Rose, vice-president, Dr. Harold DeWitt Smith, treasurer, Edward T. Pickard, executive secretary, Dr. Milton Harris, director of research of the Institute and Foundation; Dr. Wm. D. Appel, Stanley B. Hunt and Douglas G. Woolf, members of the executive committee.

Representing the Textile Foundation were Franklin W. Hobbs, chairman, and Frank B. Cheney, director.

The following representatives of textile associations participated in the meeting: Arthur Besse, president, National Association of Wool Manufacturers; Goldthwaite H. Dorr, chairman, John T. Wigington, research director, and Paul B. Halstead, secretary, Cotton-Textile Institute; Leroy A. Beers, president, Institute of Carpet Manufacturers of America; Roy A. Cheney, president, Underwear Institute; W. Ray Bell, president, Association of Cotton Textile Merchants of New York; John F. Hagen, president, American Association of Textile Technologists; J. S. McDaniel, chairman, Cordage Institute; W. P. Fickett, president, Textile Fabrics Association; Alice C. Moore, secretary, National Association of Finishers of Textile Fabrics; David Snyder, executive director, Cotton Thread Institute; C. H. LeRoy, secretary, Rayon Yarn Producers Group; Irene L. Blunt, secretary of National Federation of Textiles, Inc.; W. B. Hines, chairman of textile division, American Society of Mechanical Engineers; George F. Quimby, secretary-treasurer, and R. C. Utess, member of the executive committee, Soft Fiber Manufacturers Institute; Sidney S. Korzenik, executive secretary, National Knitted Outerwear Association.

Wool Manufacturers Hold Annual Meeting

National Association of Wool Manufacturers was holding its annual meeting at Hotel Commodore as this department went to press. The business session heard two reports: (1) by the committee on olive-oil alternatives, chairman, H. M. Flanders; (2) by H. G. Ashcroft on proposed requirements for wool tops for five grades coarser than 50s as considered by Committee D-13, A.S.T.M. Officers were elected. At the luncheon, Kenneth W. Marriner, wool consultant to WPB, spoke. Details will be reported in the next issue.

The association's Executive Committee made a report which covered two matters: First, the performance of the industry in meeting the requirements of the armed forces; and, second, the membership status of the association for 1942.

MISS CAMILLE ANDERSON of Memphis has been named the 1942 Maid-Of-Cotton, winning that honor over 25 contestants. Over the next few months she will tour the leading industrial centers of the country where the weapons of war are being forged and will display the attractive work garments that have been designed for the thousands of women recruited for work in field and factories.

Plans for Greenville Show

The Southern Textile Exposition will be held in Greenville, S. C., April 5 to 10, 1943, despite the war, according to W. G. Sirrine, president of the Textile Hall Corp., under whose auspices the show is held. "It has never been as necessary as it is today," said Mr. Sirrine, "for the operators to be in close touch with the men who make machinery. Maintenance is the No. 1 problem. It will be possible through the textile show to give aid and instruction which will enable all mills to keep going."

Annual Hosiery Association Meeting, May 6

The annual meeting of the National Association of Hosiery Manufacturers will be held Wednesday, May 6, at Waldorf-Astoria Hotel, New York. The meeting will run all day and be open only to executives of member companies. Reports of associational activities will be made, and all available timely information of guiding value will be presented.

Golf—and Defense Bonds

Chattanooga Yarn Association is holding its annual spring meeting as usual this year at Lookout Mountain Hotel. May 21 and 22 are the dates selected. The arrangement com-

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AND
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COMPANY

CLINTON — — IOWA

mittees guarantee adequate entertainment of various kinds. Committee chairman are: Ed Kimball, Invitation; F. N. Belk, Prizes; Wilbur Lawson, Entertainment. The golf tournament will be handled by George Johnston, E. D. Bryan, and R. H. Griffith. After careful consideration it was decided that all prizes this year would be Defense Bonds.

Cotton Week Interest Wide-Spread

Retail interest in National Cotton Week is developing rapidly and requests for information concerning the event, which will be observed May 15 to 22, came in much earlier this year than usual, according to the Cotton-Textile Institute

Poster for 1942 National Cotton Week

and the National Cotton Council. More than 10,000 leaflets setting forth new angles of the event this year have been distributed. Approval of plans for the week were voted at a meeting of the Cotton Consumption Council in New Orleans.

A.A.T.C.C. Notes

Thomas R. Smith, president of American Association of Textile Chemists & Colorists announces that Kenneth E. Barnard, of Pacific Mills, has consented to serve again as chairman of the technical program committee for 1942 annual meeting to be held late this year. The 1942 technical program will be devoted primarily to textile and chemical problems in connection with the country's war effort. Suggestions regarding suitable topics and discussion for the technical program may be referred to Mr. Barnard.

The Southeastern Section held a round table discussion at its Spring meeting March 21, in Columbus, Ga. Subjects discussed included dyeing of hosiery containing a high-twist rayon along with Nylon and cotton; problems of dyers when processing cotton from white, black, and red land; use of radiant energy for drying textiles; substitutes for bleaching

Clear track ahead!

Faster and faster . . .
4 million blankets . . .
20 million yards of woolens . . .
30 million yards of cottons . . .
Winter uniforms . . .
Summer uniforms . . .
Shirtings . . . socks . . .
Tents . . . parachutes . . .
Powder bags . . .
Textiles—for Victory!

There's a clear track ahead for greater speeds than the Textile Industry has ever before achieved!

There's a challenge to men and management to produce fabrics of a quality and in a variety and volume to make our Army and Navy the best clothed and equipped in the world . . . plus the necessary textiles for civilian use.

Mill engineers and superintendents are keeping a twenty-four hour a day watch over their equipment, seizing every opportunity to make repairs, improvements and replacements of obsolete machines.

They know that only in this way can they keep their plants at top-notch efficiency, avoid let-downs in speed or quality of production and be ready for the hard competition after the war.

Since 1820, the Butterworth Organization has served the Textile Industry in America... pioneering, building and improving machinery for the Wet End of Textile Finishing. Today, while Ordnance production has first call on our facilities, we are still building Textile Finishing Machines as required in America's great war program.

H. W. BUTTERWORTH & SONS CO.
Main Office and Works, Philadelphia, Penna.
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In Canada: W. J. Westaway Co., Hamilton, Ont.

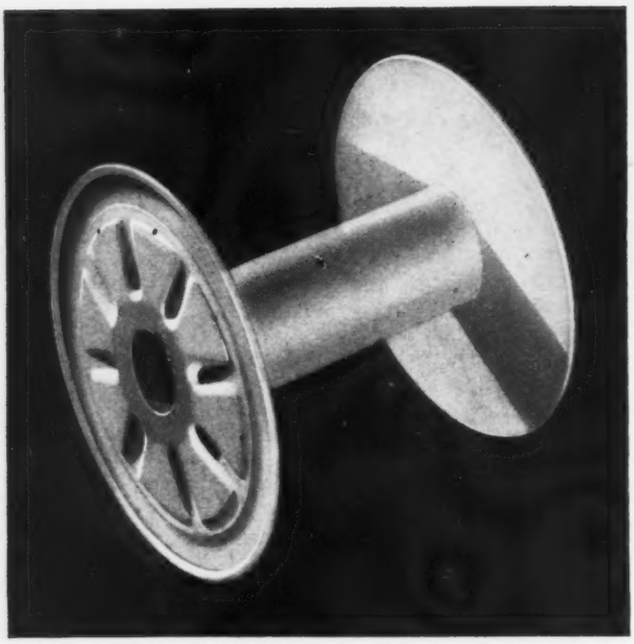
***64%**

of equipment now in use in the wet end of textile finishing cannot operate at a profit in competition with modern machines.

*Proved by Research

Butterworth

PRODUCING GUN MOUNTS FOR THE UNITED STATES ARMY



Now Available...

NEW HUBBARD ELECTRO-WELDED-STEEL *Sectional Warp* BEAMS FOR TRICOT KNITTING

ELECTRO-WELDED-STEEL construction gives essential strength and light weight. These balanced Hubbard Sectional Warp Beams are now available as a highly satisfactory war-time substitute for priority banned magnesium alloy types.

Under tests conducted at several tricot knitting mills, these new electro-welded-steel sectional warp beams have proved successful beyond expectations. By taking advantage of the structural strength of steel and the rigidity afforded by electro-welded construction, Hubbard engineers have held weight down to a minimum. Tests proved that both machines and operators work smoothly and efficiently with these new Hubbard beams.

If you need or soon will need, Sectional Warp Beams, write for specifications and prices. May we suggest that you plan in advance of your needs . . . to assure future deliveries on time.

HUBBARD SPOOL COMPANY
1626 CARROLL AVENUE • CHICAGO, ILLINOIS
Manufacturers of Spools and Reels Since 1907
For the Textile and Wire Industries

GROUP AT A.A.T.C.C. DINNER AT COLUMBUS: (left to right) Lee Baker, secretary Southeastern Section; Thomas O. Ott, TEXTILE WORLD; Alan Clow, A. M. Tenney Associates; Edward W. Estes, Stein Hall & Co.; J. D. Crowe and S. E. Peck, Procter & Gamble

agents to supplement the present stock of chemicals now in use and which are growing scarcer; and conservation of materials used in bleaching, dyeing, and finishing plants.

The Piedmont section will hold a meeting at the Sir Walter Hotel, Raleigh, N. C., on April 18.

The association has offered to broaden its research service to cover dyeing of cotton fabrics for military purposes. A year ago the association set up a special committee to conduct research work on dyeing of olive-drab wool fabrics.

Bell Issues Warning on Bleached Fabrics

Curtailment of the use of chlorine for bleaching of textiles will result in a lower degree of whitness in sheets, pillow cases, and wide sheetings, according to W. Ray Bell, president of the Association of Cotton Textile Merchants. WPB Order M-19 restricts the use of chlorine to one-half the monthly quantities used by any mill or finishing plant in the year ended June 30, 1941. In a statement to members of the association, Mr. Bell said that it is evident previously maintained qualities of whiteness in bleached textile products can no longer be expected. "The consuming public will, I am sure, understand that this is a necessary part of the participation of both producers and consumers in the all-out effort to win the war."

Rayon in Military Goods

Government requirements for military supplies which are being met by rayon goods are listed in the annual report of Hiram F. Rivitz, president of Industrial Rayon Corp., Cleveland, Ohio in that company's annual report to stockholders. He states that the following items are now being supplied to the Government or will soon be supplied to the Government and that items numbered from 1 to 10 all take an A-1 priority rating:

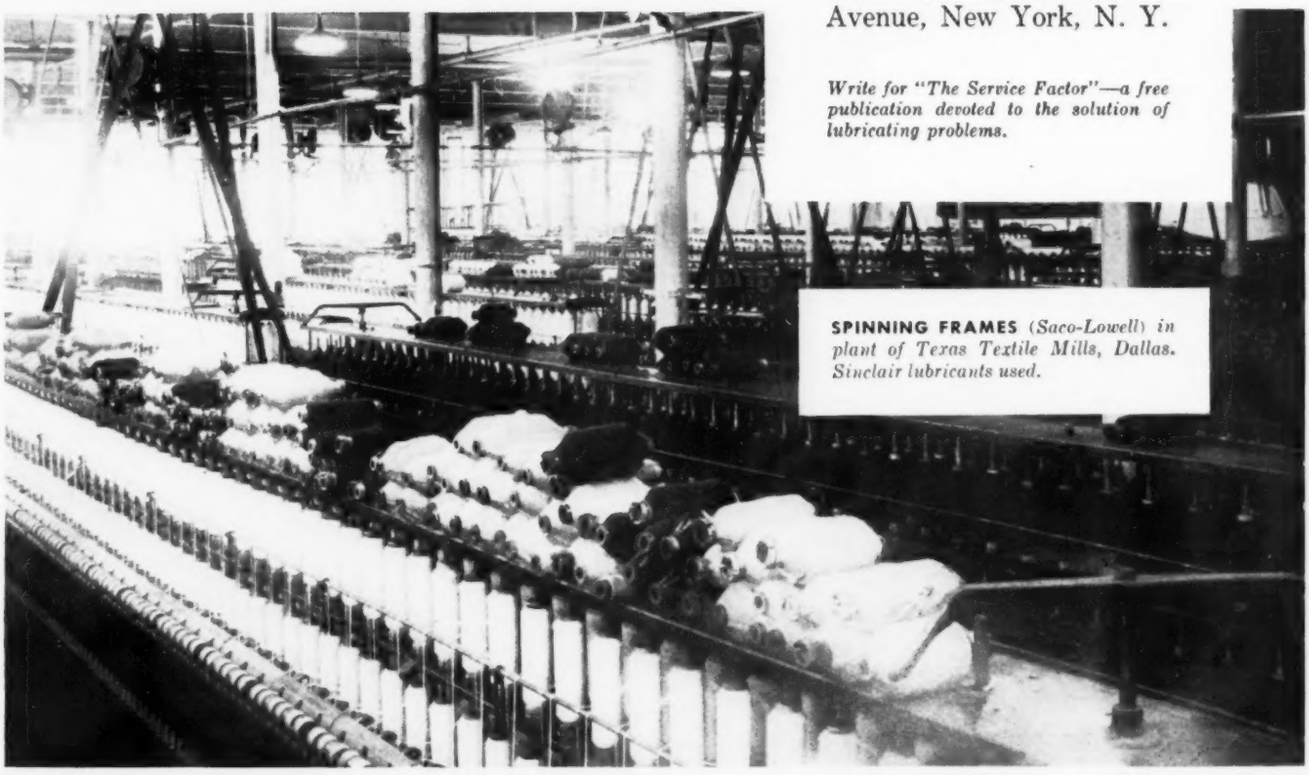
1. Wire covering insulation used in bombers, destroyers, submarines, anti-aircraft control and signal corps switchboard.
2. Parachute uniforms (snagproof).
3. Helmet linings.
4. Self-sealing gas tank cloths.
5. Uniform linings.
6. Cartridge and powder bag cloths.
7. Neckties and kerchiefs, for Navy enlisted men.
8. Blinkers and tenting materials.
9. Tire cords, used on army trucks, reconnaissance cars and aircraft.

(*Continued on page* 124)

WAR SCHEDULES suffer if machine lubrication is inadequate. For *TEXTILE MACHINERY* there are . . .

...SINCLAIR LILY WHITE OILS affording efficient spindle lubrication, low temperature and absence of power loss: also **NO-DRIP LUBRICANTS** with non-throw stability for correct top roll lubrication. For full information, or lubrication counsel (including *Knitting Machinery*), write nearest Sinclair Office, or Sinclair Refining Company, 630 Fifth Avenue, New York, N. Y.

Write for "The Service Factor"—a free publication devoted to the solution of lubricating problems.



SPINNING FRAMES (*Saco-Lowell*) *in plant of Texas Textile Mills, Dallas. Sinclair lubricants used.*

SINCLAIR TEXTILE LUBRICANTS

SINCLAIR REFINING COMPANY (Inc.)

2540 West Cermak Road, Chicago • 10 West 51st Street, New York City • Rialto Bldg, Kansas City • 573 West Peachtree Street, Atlanta • Fair Building, Ft. Worth

More than 150 textiles needed for military use!

Cloth, cotton
Cloth
Cloth, 6¾-oz.
Cloth, 16-oz.
Cloth, jungle
Damask, table
Denim, unshrunk
Drill, 7-oz.
Drill, 7½-oz.
Drill, 7½-oz.
Drill, 7½-oz.
Drill, 7½-oz.
Drill,
Drill,
Duck
Duck
Gauze, pla
Italian, 4.8-
Jean, 4.8-oz.
Leno, 1.5 oz.

Cordage, silk
Cord, Nylon
Cord, hat
Cord, sash
Felt, pressed
Laces, legging

Drawers
Gloves
Gloves, woolen
Jerseys
Lining, 22½-oz.
ning, 26-oz.
fflers, 8½-oz.
ks, cotton
ks, cotton
ks, pt. wool
Warp-knit, wool
Wristlets

Cloth, uniform
Covert, 12½-oz.
Doeskin, 26-oz.
Elastique, 18-oz.
Elastique, 18-oz.
Elastique, 24-oz.
Facing, 16-oz.
Flannel, 8½-oz.
Flannel, 10½-oz.
Flannel, 11-oz.
Flannel, 13-oz.
-oz.
-oz.
-oz.
Lining, 12-oz.
Lining, 30-oz.
Melton, 16-oz.
Melton, 32-oz.
Serge, 14-17 oz.
Serge, 10½-oz.
Serge, 18-oz.
Shirting, 10½-oz.
Suiting, 20-oz.

Card them better, faster with ABINGTON VACUUM STRIPPING

Stripping automatically by 100% vacuum gives these definite and vital advantages:

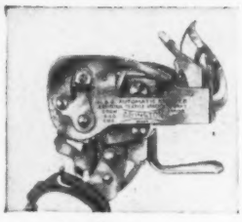
1. **The faster stripping keeps cards in production for a DEFINITE GAIN OF 4% OR MORE.**
2. **The elimination of brushes assures MAXIMUM EFFECTIVENESS OF FIBRE SEPARATION by keeping the wire faces sharper and the wire bends truer.**
3. **Ease and speed of operation often permit an extra stripping per shift as added PRODUCT-QUALITY INSURANCE.**
4. **PROTECTS WORKMEN against injury, dust and fly, and SAVES 60% to 90% of former stripping time.**

PROCESS WASTE COLLECTING
Through Waste Stations and Downtakes with flexible hose attached, the vacuum piping system is used for process waste removal and general cleaning. Flat strips, picker waste, card fly, comber noil, sweeps, etc., are vacuum delivered to a central waste house without trucking or handling labor.

OUR STRIPPER USED IN 700 MILLS— BOTH COTTON & WOOL
(Note — on WOOL, the benefits are fully as great)

ABINGTON WEAVER'S KNOTTER

This is the only weaver's knotter that automatically scissor-clips the tails. Tails made any length from 5/16" down to minus 1/16", both tails uniform, and all knots uniform. Small, tight knots acceptable in place of adhesive splice. Winder production can be increased 10% or more using our Knotters. Send bobbin or fair sample of your yarn and we will forward Knot card and details of



FREE TRIAL in your mill

Request Stripper and Knotter Catalogs

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ABINGTON TEXTILE MCHY. WKS., ABINGTON, MASS.

Card Strippers — Yarn Dyeing Systems — Weaver's Knotters

OFFICES AT BOSTON, MASS. • CHARLOTTE, N. C.

A CORNER of the new cotton display room which the Cotton-Textile Institute opened last month with a cocktail party for the press. Virginia Jewel, fashion director of the Institute and of the National Cotton Council, explained the purpose of the display room and the expanded promotional service: "Cotton is the third ranking industry in this country, and Americans use more than four times as much of it as of all other fibers put together. Yet it has had less promotion and less press recognition than any other fiber. We are all-out to correct that inconsistency."

10. Army uniform decorations, such as hat bands, hat cords, chevrons and insignia.
11. Flags for army and navy.
12. Nurses' uniform linings.
13. Surgical dressing wrappings.
14. Army uniform shirtings in combination with wool.
15. Civilian defense workers' uniform, in combination with wool.

Contemplated use of rayon in a number of items formerly made of silk are listed as follows:

1. Flare parachute cloth. 2. Supply parachute cloth. 3. Mine laying parachute cloth. 4. Escape parachutes. 5. Fragmentation parachutes. 6. Bomb parachutes.

Organize for Conversion

Eastern Textile Association for War Conversion was formed in Philadelphia March 18 by a group of upholstery and worsted manufacturers whose 1000 looms were available for conversion to war work and who desired to pool their equipment resources in order to approach the Government procurement officers. Bernard Davis, of La France Industries, is president, and D. J. R. Suffredini is recording secretary. Arthur F. Morton and Albert W. Drobile are technical consultants.

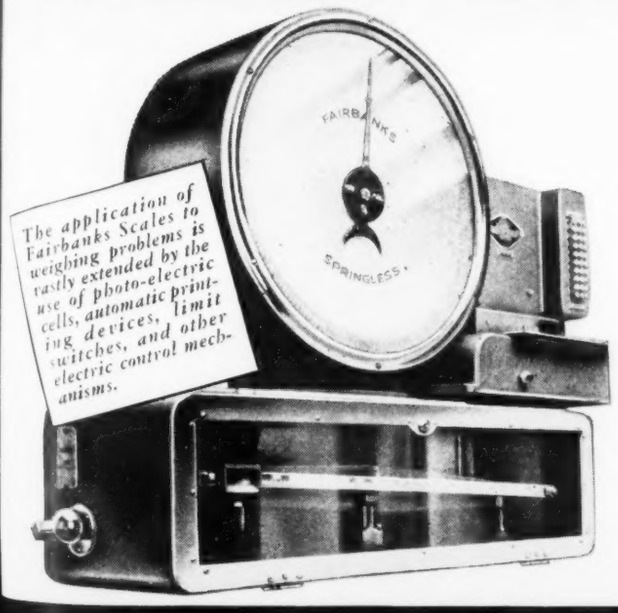
Bigelow-Sanford Shows Blanket Weaving Methods

Last month Bigelow-Sanford Carpet Co. invited executives of other carpet mills to visit its Amsterdam, N. Y., plant for the purpose of studying blanket manufacturing operations. Steps necessary in converting carpet equipment to production of blankets were explained by James M. Donnelly, superintendent of the plant and other executives of the company.

Conference on Sizing Spun Rayon Warps

A conference on sizing of spun rayon warps was held on April 8, in Washington under the auspices of the Textile Research Institute. The warp sizing studies which are now being carried out under direction of the Institute were explained, and plans formulated for wider and more effective prosecution of the project.

SCALES Grow Obsolete, TOO!



The application of Fairbanks Scales to weighing problems is vastly extended by the use of photo-electric cells, automatic printing devices, limit switches, and other electric control mechanisms.

Scales without modern features may be as unsuited to your *present* needs as the car you bought thirty years ago . . . may be needlessly retarding production and increasing costs.

For scales have acquired amazing new abilities. They weigh even while materials are on the move. At the touch of a button they print weight records far faster than a man can read and write them . . . and without the inevitable human errors. They count small parts and products. They weigh and disburse preset amounts automatically, and can keep ingredient proportions secret!

Let Us Help You

Fairbanks Scale engineers are thoroughly familiar with the application of improved scales to today's industrial methods and processes. Perhaps they could suggest modernizations which would prepare your present scales to serve you more efficiently, or uses in which specialized new scales would swiftly repay their cost. Write Fairbanks, Morse & Co., Dept. D204, 600 S. Michigan Ave., Chicago. Branches and service stations throughout the United States and Canada.

FAIRBANKS·MORSE FAIRBANKS SCALES **SCALES**

DIESEL ENGINES ELECTRICAL MACHINERY MAGNETOS RAILROAD EQUIPMENT WASHERS-IRONERS STOKERS
PUMPS MOTORS FAIRBANKS SCALES WATER SYSTEMS FARM EQUIPMENT AIR CONDITIONERS

INCREASE your production — then double it — and redouble it. That's the cry these days. And still they tell us we "ain't seen nothin' yet." Manufacturing facilities that were adequate yesterday are taxed to the limit today. And it's none too soon to be anticipating the demands of tomorrow.

This is particularly true of water conditioning equipment and right now is the time to take stock of the situation — to make a survey of demand and capacity from the standpoint of quality as well as quantity. Maybe there's still a safe margin — but you'll be wise to make certain. And if you're confronted with a problem, play doubly safe and consult Graver at once.

For more than 30 years Graver has specialized in the design and manufacture of water conditioning equipment of all types. Graver engineers have tackled the most difficult water conditioning problems — and solved them. They'll gladly make an analysis of water samples and submit unbiased recommendations without cost or obligation.

Write Graver — today.

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WATER SOFTENERS • CLARIFIERS • FILTRATION SYSTEMS
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STEEL STORAGE TANKS • WELDED CONSTRUCTION • STRESS RELIEVING
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TEXTILE CALENDAR

Alabama Cotton Manufacturers Association, annual meeting, Grand Hotel, Point Clear, Ala., April 17 and 18.

Textile School of N. C. State College, 15th annual style show, Raleigh, N. C., Apr. 30, 1942.

American Cotton Manufacturers Association, annual meeting, Atlanta Athletic Club, Atlanta, Ga., May 1 and 2, 1942.

Cotton Manufacturers Association of Georgia, annual meeting, Cloister Hotel, Sea Island, Ga., May 21 to 23, 1942.

Chattanooga Yarn Association, annual outing, Lookout Mountain Hotel, Chattanooga, Tenn., May 21 and 22, 1942.

Southern Textile Association, annual meeting, Charlotte, N. C., June 11 to 13, 1942.

Luminescent Pigments for Textiles

Use of luminescent pigments in treatment of textiles was described by Robert W. Joerger, chief chemist, Hope Webbing Co., at a recent meeting of the Rhode Island Section of the American Association of Textile Chemists & Colorists, held in Providence. Mr. Joerger stated that use of luminescent pigments in England for marking vehicles, curbstones, and civilian and military apparel had been followed by a sharp reduction in accidents during black-outs. Among the applications suggested for luminescent pigments are for treating belts, neckties, gloves, arm bands, hat bands, etc. In addition, cloth treated with luminescent pigments can be employed for marking danger points and outlining doorways.

Mr. Joerger showed samples of webbing made by his company and treated with luminous pigments supplied by Rhode Island laboratories, West Warwick, R. I. He also demonstrated the way in which belts, arm bands, and hat bands treated with the luminous pigments glow in darkness.

Two other types of pigments which are being employed to a more limited extent described by the speaker are radioactive and fluorescent pigments.

Alabama Manufacturers Meet

The annual meeting of the Alabama Cotton Manufacturers Association is set for April 17 and 18 at Grand Hotel, Point Clear, Ala. Theme of the meeting is "Utmost Production for Victory." Dr. C. T. Murchison will speak at the luncheon on April 17.

New Government Publications

The United States Government Manual for 1942 has been issued by the Office of Government Reports and may be secured from the Superintendent of Documents, Washington, D. C., at 75¢ per copy. This 700-page reference work

Explosive Mule

Sam, an 1100-lb. mule, owned by the Moultrie Cotton Mills, Moultrie, Ga., ate a half-case of dynamite. Since then the workmen have treated Sam with extreme gentleness.

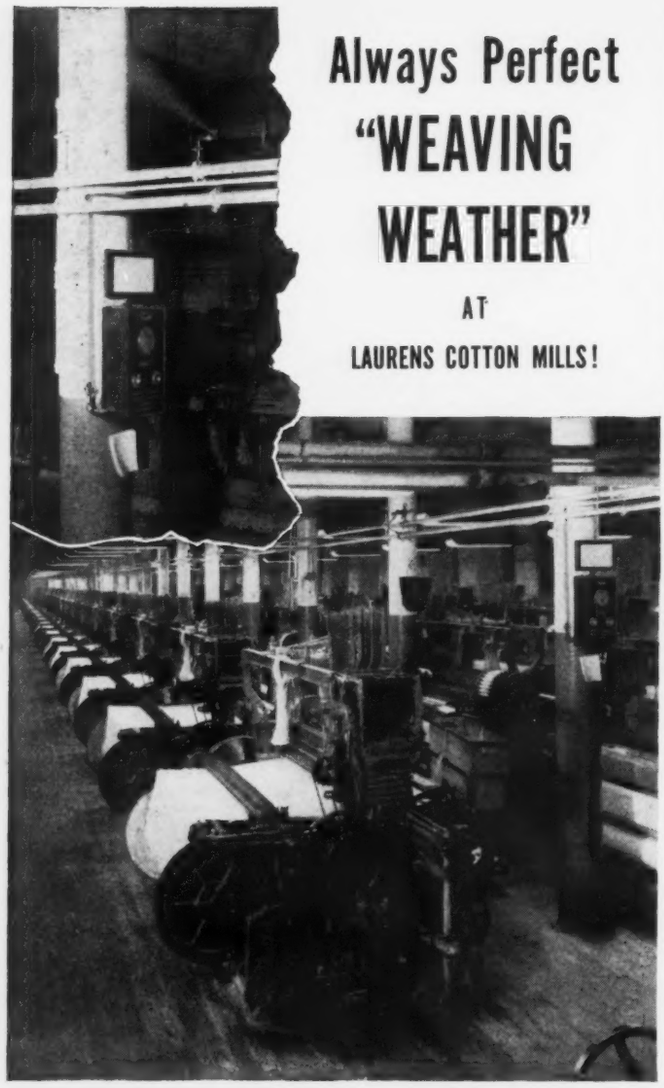
This cosmic information comes from "It Happened in Georgia," a feature in the Atlanta *Journal*. It was sent to us by a friend with the suggestion that we run an item on it on the possibility that "the story would keep the minds of your readers from brooding over the world's troubles—that is, unless the mule explodes and W. J. Vereen has a first-class tragedy on his hands."

There's more than meets the eye to this marquisette evening gown. For without the proper processing agents, the fabric itself never could have been achieved. That's the reason so many leading mills, converters, finishers and dyers have turned to Colgate-Palmolive-Peet for high-quality soaps and detergents . . . for dependably uniform wetting, fulling, scouring and dispersing agents.

The C.P.P. line includes products that fit your own special needs—usually at lower cost than so-called "special" products. Ask your Colgate-Palmolive-Peet representative for full information, or write to us direct.

COLGATE-PALMOLIVE-PEET CO.

INDUSTRIAL DEPARTMENT, JERSEY CITY, N. J.



Never too dry, never too damp . . . that's the ideal atmospheric conditions maintained day-in, day-out by the Amco System at Laurens Cotton Mills, Laurens, S. C. Amco automatically holds humidity *on the button* . . . cuts breakage of warp and filling . . . reduces imperfect goods . . . keeps loom production at peak capacity.

Modern self-cleaning Amco Atomizers deliver finely atomized spray in automatically controlled quantity, without drip or feathering down. Their self-cleaning feature in both the air and water nozzles reduces maintenance to a minimum.

Why not learn exactly how these accurate humidifying systems can improve your wartime production and simplify inspections? Let Amco Engineers survey your plant and submit report. American Moistening Company, Providence, R. I. . . Atlanta . . Boston . . Charlotte.

Amco
HUMIDIFICATION

covers the creation and organization, functions and activities of all branches of the Government.

The Official Plan Book of the Production Drive of the War Production Board has been issued by the Board and gives an outline of the straightforward production plan through which it is expected to reach the President's objectives.

"The Soldier and His Uniform" is one of a series of pamphlets published by the Women's Interests Section of the War Department, Bureau of Public Relations. It gives details regarding the make-up of the uniform, and the special garments purchased for specialized services.

Predicts Drastic Textile Conversion

A drastic conversion program for the textile industry will be issued by the War Production Board "within two weeks," Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, predicted at a meeting of the Carded Yarn Group in Charlotte, N. C., April 7. He said that while this program probably would not entail rationing to consumers, it would severely restrict supply of goods for non-essential and civilian uses. He suggested this reduction may be as much as 60% of the normal flow of these products in wholesale trade channels.

If adequate quantities of fabrics needed for military purposes are to be produced, he said, many more looms must be brought into this production. "That means," he added, "that the mills which have been producing other things have got to be converted."

New Rayon Members in Federation

The election of 29 new members was announced by the National Federation of Textiles, Inc., following a meeting of its board recently. Among them were many well known names in the rayon fabric industry including: Burlington Mills Corp.; Androscoggin Mills; Beaunit Mills; Cabot Mfg. Co.; Duplan Corp.; Greenhalgh Mills; Iselin-Jefferson Co.; Newmarket Mfg. Co.; William Whitman Co.; Manville Jenckes Corp.; Pepperell Mfg. Co.; Stonecutter Mills Co.; J. W. Valentine Co.; Paul Whitin Mfg. Co.; Woodward, Baldwin & Co.

Textile 40¢ Wage Order Effective Apr. 20

Direct wage increases for 150,000 workers in the textile industry will become effective April 20, 1942, under a wage order signed April 6 establishing the minimum wage in that industry at 40c per hour. The order was signed by L. Metcalfe Walling, Wage & Hour Administrator on recommendation of the industry committee.

Bundles For America

A new downtown unit of Bundles For America, Inc., was opened recently at 40 Worth St., New York, room 331. The organization has a work room at 22 East 79th St. The "Salvage For Defense" program includes plans for reconstructing old clothing, and making new clothing and patchwork quilts from swatches, samples, seconds, and mill lengths, contributed by the textile industry. All salvaged clothing will be given to needy families of the armed forces, and to families of men who may lose their lives in actual service. Others, too, who are deserving will be clothed. The unit which has been given a free lease "for the duration" operates under the auspices of the Women's Overseas Service League, whose membership served in World War I, and have been active ever since.

FULLITIN

FOR PERFECT FULLING

4

POINTS OF SUPERIORITY

1 Used in place of soap, it eliminates the lengthy soap boiling operation. ★

2 Used with soap, it prevents congealing, eliminating stuck places, creases and whiplashes. ★

3 Permitting the use of stone cold soap, it prevents the troubles that hot soap causes. ★

4 It quickly saponifies oil, grease and dirt. ★

Proud to be Doing Our Part —

— at our Defense Plant to speed the country on to Victory

It's the Finish that Counts

ERNST BISCHOFF CO · INC., IVORYTON · CONN.

Darnell Dependability assures savings, service, safety, speed. A caster or wheel for every use.
For Savings Specify
DARNELL CASTERS
& E-Z ROLL WHEELS
Write FOR NEW MANUAL
DARNELL CASTER & WHEEL MANUAL
A SAVING AT EVERY TURN
DARNELL Corporation, Ltd.
LONG BEACH, CALIFORNIA
36 N. CLINTON ST., CHICAGO, ILL.
60 WALKER ST., NEW YORK N. Y.

This and That

Increase in output of Aralac casein fiber to 10,000,000 lb. yearly has been announced by Aralac, Inc., Taftville, Conn. Production now is about 500,000 lb. a month and will be increased to 800,000 lb. a month when installation of additional equipment is completed in July or August.

Baker-Cammack Hosiery Mills, Burlington, N. C., has recently developed a method for knitting hosiery with elastic tops without use of rubber. It is stated that the hosiery can be made on plain transfer top machines or low cylinder machines at little cost for change-over of machinery. Licenses have been issued to Zephyr Sales & Service Co., Charlotte, N. C. for the right to make, mount, and use the necessary attachments.

Dr. Milton Harris, director of research for Textile Research Institute and the Textile Foundation, was one of the speakers at a meeting of the American Chemical Society held last month in Chicago. Dr. Harris described the results of recent researches on wool.

The life history of worsted yarns and fabrics, from the sheep's back to the finished garment, is included in a booklet for retail salespeople prepared and issued by Arlington Mills. In "Facts About Naphthalated Wool", each step in the process, carding, combing, dyeing, spinning and weaving is pictured and explained. Types of garments in which worsteds are used, are illustrated. The booklet is being circulated through Arlingcrest Naphthalated Wool Service, 401 Broadway, New York.

Redwood bark fiber, recently described in these columns, was quoted late last month at 3.9¢ a pound delivered in Atlantic Coast States.

American Woolen Co. held its 43rd annual stockholders meeting at Springfield, Mass., on March 24. The meeting was routine, lasting less than a half hour. Only nine stockholders were present outside of the management group.

American Cotton Shippers Association will hold its annual meeting at New Orleans, April 24-25, while the Southern Cotton Shippers Association will held its annual meeting in Memphis, April 18.

The Boston warehouse of the National Wool Marketing Corp. was severely damaged by fire on March 7. Estimates current at the time placed the damage at about $250,000. At least one and one-half million pounds of domestic raw wool was damaged, and it will still take some time to determine the degree to which portions of this stock may be salvaged.

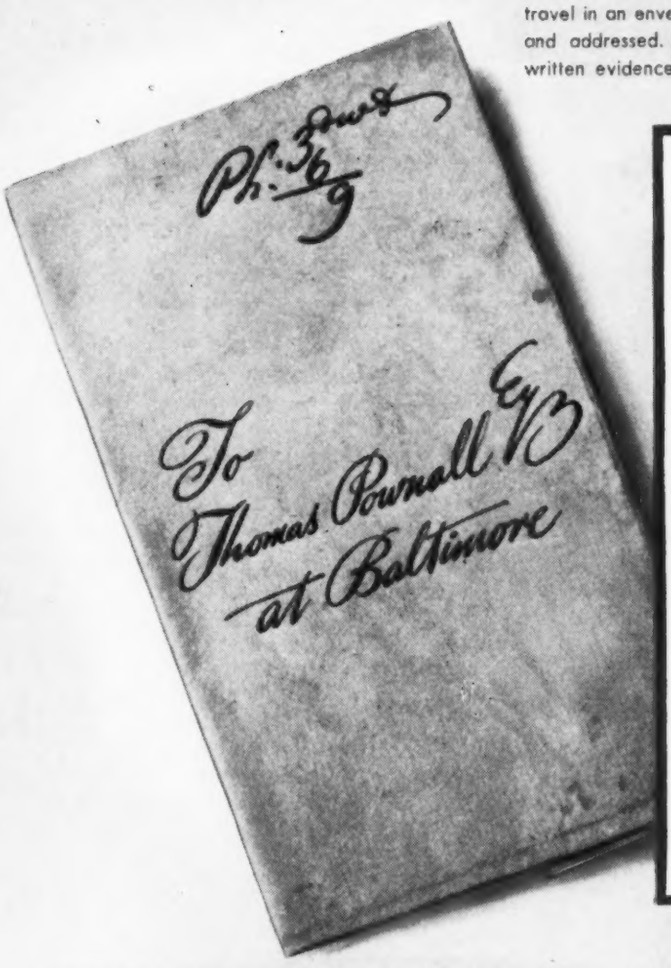
Philadelphia QM Depot is said to be on the thresold of a further expansion beyond the $13,000,000 enlargement project only recently completed.

Textile Designers, Analysts & Technicians Association met March 14 at Fall River and heard a talk by Edmund Gifford of Luther Mfg Co., on "Cotton, from Plantation to the Mill." Leo B. Chabot, president, presided. The next meeting will be held at New Bedford on May 9 at which Peter Wayner will preside. The subject of the meeting will be Fiberglas.

"Chicago Tribune's" third annual American fashion competition is now under way and all sketches must be received by the *Tribune* before midnight of May 1, 1942. A total of $7,500 in cash prizes will be awarded and a fashion show will be held later in the year.

Federal Civil Service Commission is seeking technologists in various fields, including textiles, with salaries ranging from $2,000 to $5,600 a year. The age limit has been raised to 60 years. No written tests will be given. Forms for application may be obtained at first and second-class post offices or from the Civil Service Commission, Washington, D. C.

Atlanta (Ga.) **Textile Club,** over the signature of Harry McGinty, president, has advised its members of the forma-



A typical letter of Franklin's time. It did not travel in an envelope, but was merely folded and addressed. Instead of a stamp, it bore written evidence that the postage had been paid.

For the textile industry Penn Salt makes

CAUSTIC SODA • HYDROGEN PEROXIDE
BLEACHING POWDER • CHLORINE
SULPHURIC ACID • HYDROCHLORIC ACID
CARBON BISULPHIDE
AMMONIUM PERSULPHATE
ANHYDROUS AND AQUA AMMONIA

"PHILADELPHIA TO BALTIMORE IN TWO DAYS! . . . INCREDIBLE, MR. FRANKLIN"

FOR twenty-one years before the Revolutionary War, Benjamin Franklin was deputy postmaster general of the American Colonies. It was he who first put the postal service on a paying basis. He did so by increasing the number and speed of riders . . . by measuring the post roads and marking them accurately with milestones . . . by careful attention to details.

In business, attention to the little things is tremendously important. Penn Salt's scrupulous care with details enables it to manufacture improved chemical products . . . helps its technical representatives to solve troublesome problems for customers . . . makes its nation-wide sales organization efficient. Yes, emphasis on "tremendous trifles" underlies Penn Salt in all its activities.

PENNSYLVANIA SALT MANUFACTURING COMPANY
1850 *Chemicals* 1942
1000 WIDENER BUILDING, PHILADELPHIA

CHEMISTRY IS THE KEYSTONE OF INDUSTRY

BRANCH OFFICES: NEW YORK • CHICAGO • ST. LOUIS • PITTSBURGH • WYANDOTTE • TACOMA
PLANTS: Philadelphia • Easton • Natrona • Wyandotte • Tacoma • Portland, Ore.

Where Do You WANT THE AIR?

Adjustable outlets make Parks Traveling Cleaners

- MORE FLEXIBLE
- MORE EFFICIENT

Volume of air may be regulated, where the air is aimed may be adjusted. Both air streams may be "spotted" in — or directly down — or slightly out; each side independently of the other.

Parks-Cramer Company

Fitchburg, Mass. Charlotte, N. C.

tion of a class at Georgia School of Technology in physical and chemical testing of all kinds of textile fabrics. Night classes will be arranged.

Bigelow Sanford Carpet Co., Thompsonville, Conn., is operating its machine shops 24 hours a day seven days a week for defense production with a high priority rating. Production of 70,000 blankets has been completed and 200,000 more are in production.

Scant Supplies of Textiles for Civilians

Cotton goods merchants who have held on to the idea that civilian goods would come through somehow, have been relaxing their grip on that thesis. The tightening of civilian supplies is expected to continue and to become considerably more acute before the end of the year. There was a flurry of civilian buying early last month which dwindled off as the month progressed. Whatever orders were taken, like all civilian business, must give way if the Government offers further competing business to the same producer. The shifting over of mills from one fabric to another, such as the recent turn on the part of flannel looms to osnaburgs, results in scarcities where they had not previously been expected.

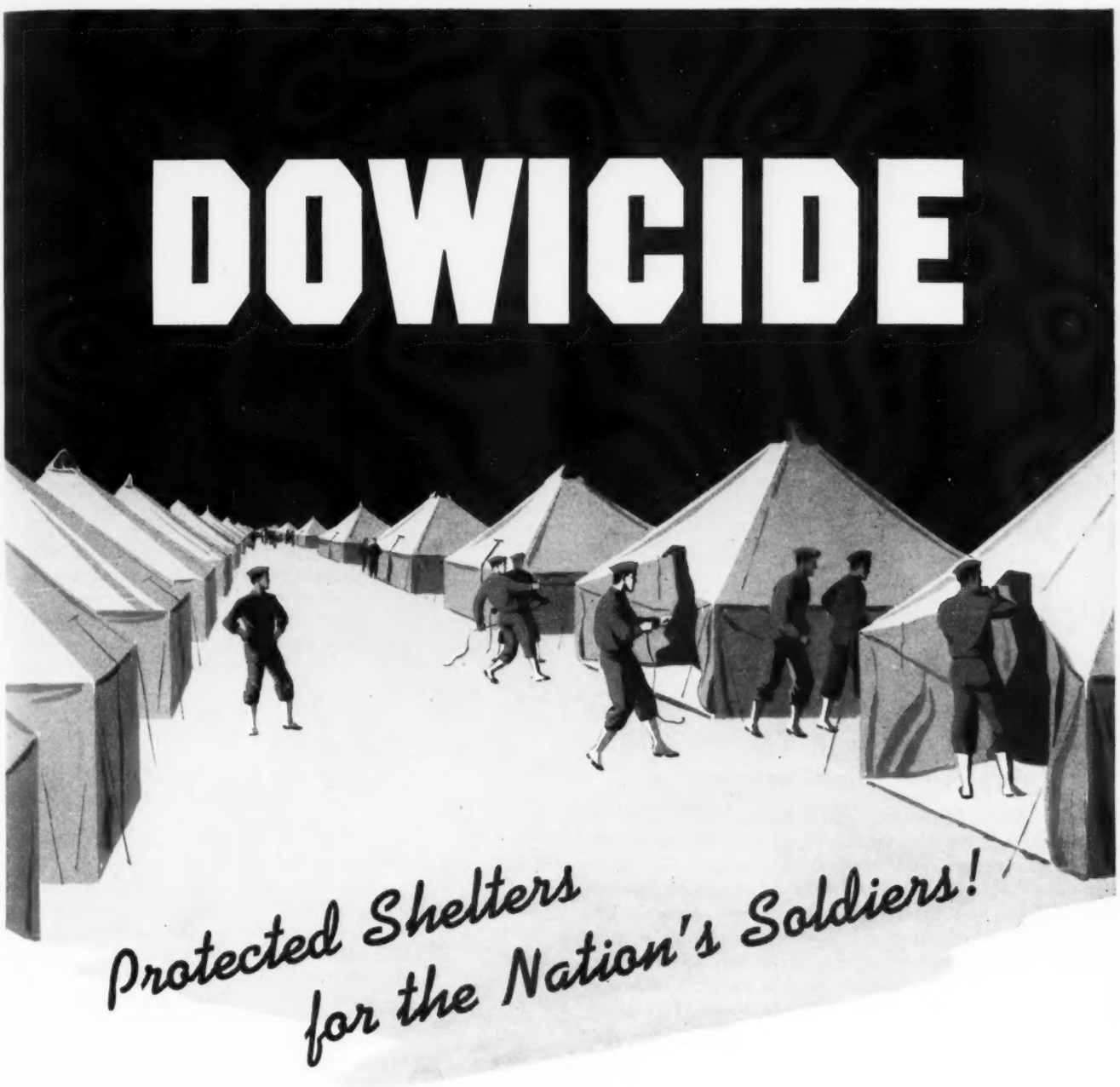
Wool goods will soon be a misnomer for apparel fabrics excepting those designed for the armed forces. Wool limitations, which are down to 10% in some classes for the second quarter, will certainly not be relaxed as the war goes on and may probably be tightened. Even wastes and reworks may feel the hand of allocation. The transition to manipulated fabrics in the apparel field will have its rough spots according to interviews reported now and then from clothing houses. It is something that is on its way, whether distributors cooperate or not. Mills are active in considering what may be done with wool of 44s and coarser quality, and with mohair, since principal restrictions do not apply to these. Clothiers state they have found sources of worsteds in Mexico.

Rayon production for the early months of 1942 was running at a rate of about 16% over similar months of 1941. However, the allocation of rayon to the hosiery trade and for export has resulted in curtailment rather than increase in poundage available for rayon weavers. If the use of rayon in war materials increases, civilians will before long feel the pinch of inadequate supplies here also. Users of rayon materials will doubtless standardize their lines.

Hosiery manufacturers in the branded full-fashioned group have withdrawn lines as sold up in numerous instances. Prices on rayon numbers from these houses range from $6.50 to $8.25 a dozen. Half-hose is brisk and available production considerably reduced through recent large Government orders. While the American industry has ceilings on mill prices, the Canadian hosiery industry faces a ceiling on retail prices with full-fashioned hosiery items frozen at figures ranging from 79¢ to $1.25.

Underwear mills are finding it more and more difficult to make certain of their yarn supplies. Portions of their civilian business are now being held up through the inadequacy of these supplies. Government business has extended from combed yarns to carded, and the extent of the war need makes a definite impress on the carded yarn field. General underwear business in March was light because mills had so little to offer. Buyers are anxious to pick up spot goods, taking seconds if they cannot get firsts.

Outerwear manufacturers are gradually getting into the swing on extensive Government business. The yarn situation is difficult for them insofar as civilian orders are concerned and blends will be the order of the day. The Government is conducting a census of yarn stocks in this field.



As MEN in unprecedented numbers pour into our armed services, the need for adequate shelter looms as a job of major importance. Tens of thousands of strong, durable tents are required for this purpose.

Of utmost significance is the ability of the fabrics in these tents to ward off the ravaging attacks of mildew. A group of chlorinated phenol derivatives manufactured by Dow and sold under the trade mark DOWICIDE* meets this challenge. These materials, when incorporated in compositions used for finishing all types of fabrics, effectively protect against rot and mildew.

Even in atmospheres of high humidity DOWICIDE is thorough and dependable in inhibiting mold growth. Therefore, longer life and greater service from tents, tarpaulins, etc., is assured. For complete information on DOWICIDE, write to the Dowicide Division.

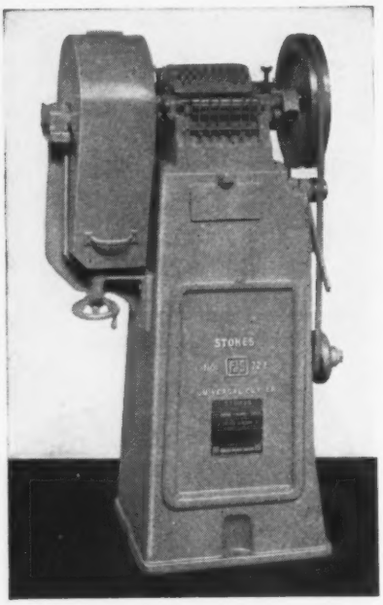
*Trade Mark Reg. U. S. Pat. Off.

DOW

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • St. Louis • Chicago • Houston • San Francisco • Los Angeles • Seattle

For Cutting
RAYON
WOOL
SILK
FLAX
JUTE
COTTON
and Other
Fibres . . .
Wet or Dry



This Improved Machine Makes 500 to 20,000 Knife Cuts per Minute

●

Handles 4 to 8 Tops or Equivalent, Simultaneously

This new Stokes Universal Fibre Cutter is productive, economical and flexible, cutting fibres to accurate lengths at high production rates and handling wet or dry materials. The full range of fibres, from 8" length to Flock, is produced by four quickly interchangeable cutter heads. The variable speed drive is instantly adjusted while operating, to obtain maximum production in cutting any material. The speed of the cutter head is synchronized with that of the feed rolls to maintain close accuracy in length of cuts.

Other features include Self-sharpening Knives; Tension Release for Feed; Hand Wheel Adjustments while operating; Balanced Heavy Duty Cutters, ball bearing mounted. Four standard cutter heads are available, as follows:

Cutter Head	Length of Cut	Approx. Cuts per Min.
A	8" Max. 1/2" Min.	500 (single strand)
B	4" Max. 1/4" Min.	1,500 (single strand)
C	2" Max. 1/8" Min.	3,000 (single strand)
D	For Flock	20,000

Write for new illustrated Bulletin 42 FC with complete description and specifications of this machine . . . ideal for cutting fibres to lengths required for mixed or 100% spinning and other special purposes.

F. J. STOKES MACHINE COMPANY
6004 Tabor Road Olney P. O., Phila, Pa.

F.J.Stokes FJS Est. 1895

From the Editor's Mail-Bag

"It All Depends on Me"

PHILADELPHIA, PA.

Editor, TEXTILE WORLD:

Your editorial "It All Depends on Me" in the March issue of TEXTILE WORLD is exceedingly interesting, as is the text of the brochure received from England, on page 58. Would it be possible to get 500 reprints of pages 57 and 58?

RALPH WOODS, Sales Manager,
Fibre Specialty Mfg. Co.

* * *

LAWRENCE, MASS.

Editor, TEXTILE WORLD:

The March issue of TEXTILE WORLD contains an article on page 58 which seems very appropriate at the present time. This article "It All Depends on Me," appears to me to be well worth the attention of every man, woman, and child in the United States.

We attempt to use our plant publication, "Arlington Mills News and Views" as a means of furthering the education and well-being of our employees as well as a clearing-house for all the news of the plant and the policies of management.

We would like your permission to reproduce, at least in part, the article, "It All Depends on Me," in the next issue of our publication.

In this all-out war effort it is our belief that articles such as this serve a purpose as meaningful as do the lumbering tanks that come off our assembly lines.

ROBERT SALTENSTALL,
Personnel Director, Arlington Mills

* * *

LAKEWOOD, OHIO

Editor, TEXTILE WORLD:

It is indeed too bad that every industry does not have a Douglas Woolf to make its members laugh and weep as he prods them onward into the light of present realities, helping his industry to understand its particular problems in relation to the whole of industry in this vast war effort. Truly, you are doing a magnificent piece of "War Work" through the editorial policy of TEXTILE WORLD.

I was especially inspired by your editorial, "It All Depends on Me," in the March issue. I say "amen." That is our most vital responsibility right now; every individual must see his or her particular task, regardless of its nature, as vitally important to the entire all-out war effort.

CYNTHIA WARE

Acknowledged with Thanks

WASHINGTON, D. C.

Editor, TEXTILE WORLD:

I want to congratulate you on the editorials in your March issue, "Washington Is All Cluttered Up" and "Enlist the Trade Association!" They are utterances which are penetrating and pungent, and should serve to wake up a sizeable assortment of gray matter.

CLAUDIUS MURCHISON,
President, The Cotton-Textile Institute, Inc.

* * *

ROCK HILL, S. C.

Editor, TEXTILE WORLD:

You are to be highly complimented on your February, 1942, issue of TEXTILE WORLD. I believe this magazine contains a wealth of information that will be of service not only to the manufacturer but also the U. S. Government.

SIDNEY SPRINGER

BENSAPOL

for scouring and fulling of MILITARY FABRICS

WOOL GOES TO WAR!

FABRICS for America's armed forces—Gabardine, Serge, Elastique, Barathea, Melton, Kersey, Doeskin can be easily and effectively scoured and fulled with BENSAPOL. These types of fabrics require a viscous quality soap with high titre—but heavy soap becomes solid and hard to handle when cold. The addition of BENSAPOL prevents solidifying, simplifies application, assures faster, more thorough penetration. Furthermore, a solution with BENSAPOL retains its body, does not become thin or watery . . . you'll find your tightly constructed fabrics free of mill wrinkles, chafing, whiplashes and welts . . . reduces dead loss. BENSAPOL leaves the fibre in excellent condition for dyeing and all subsequent processes.

BENSAPOL is also highly recommended for SILKS, RAYON and COTTON. It acts as a softener, and gives a better hand.

Write today for a generous free sample.

WOLF BRAND PRODUCTS

JACQUES WOLF & CO.

Chemicals PASSAIC, N. J.

WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Tenn., Knoxville, Tenn., Charlotte, N. C., Milwaukee, Wisc., Columbus, Ga.

"The Phantom Doorman" speeds traffic through fast operating doors...saves humidification

... says Mr. V. Carlsen, Vice-President of the Aspinook Corporation, Jewett City, Conn. "Reduced steam heating cost," is the reason. The picture shows "The Phantom Doorman" in operation in the Aspinook plant.

Save Time . . . Doors . . . Heat . . .
Air Conditioning . . . Workers' Efficiency

Investigate the 5 operating profits which "The Phantom Doorman" brings to your mill. Here is a "full-time" door opener — door closer, controlled by electric eye, ceiling or wall-type switch or floor button. Can be powered by existing compressed air system. Doors are under control even when the air supply is off — they may be opened manually and closed automatically just as any door equipped with a conventional door closer.

See THOMAS' REGISTER under "Door Operators," for complete list of Engineering-Contractors in major cities. Write "The Phantom Doorman," Dept. 37, The Yale & Towne Mfg. Co., Stamford, Conn., for folder and information sheet which will enable us to quote price and delivery. Made by the makers of the famous Yale Line of Locks, Hardware, Pumps, Hoists and Industrial Trucks.

"THE PHANTOM DOORMAN"

TRADE **YALE** MARK

Determination of Aralac

Percentage in a mix found through its phosphorus content

THE FOLLOWING TENTATIVE METHOD for the determination of phosphorus in casein fiber has been released by Atlantic Research Associates, Inc. This method can be applied to the determination of Aralac in admixture with wool, viscose rayon, acetate rayon, or cotton. It is not suitable, however, for determination of Aralac in admixture with rabbit fur, as rabbit fur has a sufficient phosphorus content to invalidate the method.

If an approximation of the Aralac content of the sample is known (as through microscopic examination) a sample equivalent to not more than 0.5 grams of Aralac is taken. The sample is dried and weighed, given a 2-hour carbon tetrachloride Soxhlet extraction, and air dried. The sample is then given three 1-minute hot water rinses and again dried and weighed.

The sample is placed in a 300-ml. Kjeldahl flask; 15 ml. of conc. H_2SO_4 and 15 ml. of conc. HNO_3 are added, and the whole is heated over a low Bunsen flame. The acid digestion is carried out with frequent additions of conc. HNO_3 until the liquid is colorless. This may take from 1 to 3 hours.

When the liquid is colorless or a light, limpid yellow, the flask and contents are cooled and transferred to a 400-ml. beaker by washing with about 100 ml. of distilled water. Any white precipitation is disregarded. Next 40 grams of ammonium nitrate is added, and the solution made up to 150 ml. with distilled water and heated to 70°C. Then 70 ml. of acid ammonium molybdate reagent is immediately added with stirring and the whole permitted to remain overnight.

The precipitate is filtered through a Gooch crucible and then washed free of nitrates (about 20 washes) with an acid ammonium sulphate wash solution.

The ammonium phosphomolybdate precipitate is dissolved from the crucible with 50 ml. of dilute NH_4OH (1:10); 10 ml. of conc. H_2SO_4 is added, and the solution immediately passed through a Jones reductar and caught in an empty flask. The reduced solution is immediately titrated with N/10 $KMnO_4$. The percentage of phosphorus is calculated:

$$\% \text{ P} = \frac{\text{ml. x N. of } KMnO_4 \text{ x } 0.000887 \text{ x } 100}{\text{Wt. of Sample}}$$

$$\% \text{ Aralac} = (\% \text{ P} \div 0.82) \text{ x } 100$$

The acid ammonium molybdate reagent is prepared as follows:

Solution No. 1. Place in a beaker 100 g. of 85% molybdic acid, mix it thoroughly with 240 ml. of distilled water, add 140 ml. of NH_4OH (sp. gr. 0.90). Filter and add to 60 ml. of HNO_3 (sp. gr. 1.42).

Solution No. 2. Mix 400 ml. of HNO_3 (sp. gr. 1.42) and 960 ml. of distilled water.

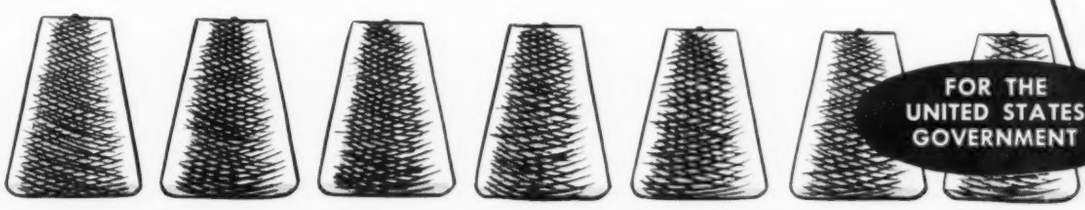
When the solutions are cold, add solution No. 1 to solution No. 2 stirring constantly, then add 0.01 gram of ammonium phosphate dissolved in 10 ml. of distilled water, and let stand 24 hours. Filter.

The acid ammonium sulphate wash solution is prepared as follows:

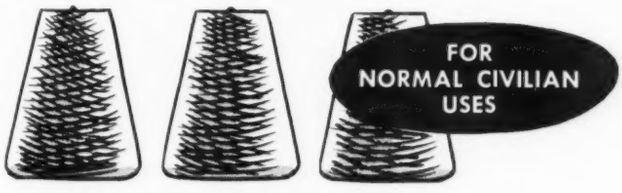
Mix 25 ml. of conc. H_2SO_4 and 1000 ml. of distilled water, and then add 15 ml. of conc. NH_4OH.

(A method for the qualitative identification of synthetic fibers, including casein fiber, appeared in an article in the February, 1942, issue of *Textile World*. The article described chemical and staining tests and showed photomicrographs of Nylon, Vinyon, casein fibers, soy bean fibers, viscose rayon, cuprammonium rayon, acetate rayon, and Fiberglas.—*Editor*)

FIRST CALL ON aberfoyle



The Textile Industry has not been excepted in the full marshalling of the Nation's resources to supply the vast needs of the armed services. We, too, owe first consideration to War needs.



The best we can do is try to distribute yarn with strict impartiality and fairness toward all. We're honestly doing our best.

ESTABLISHED 1883

aberfoyle YARNS

AMERICA'S OLDEST MERCERIZERS OF FINE COTTON

DURENE, 2-ply Mercerized Cotton Yarn; WEARTWIST, the Domestic Mercerized Lisle; COMETCORD, 4-Ply Mercerized Yarn for 6x3 Lines; S-P-Y, the Moisture-Resistant Mercerized Yarn; ENTWIST, Mercerized Cotton and Nylon Twisted Combination; NEOPHIL, Nylon Thread for Seaming and Looping Nylon Hosiery; PREFERRED Brand Seaming and Looping Thread.

ABERFOYLE MANUFACTURING COMPANY
123 South Broad Street, Philadelphia, Pa.

—and in the South
ABERFOYLE MANUFACTURING COMPANY
Belmont, North Carolina
Representatives in principal textile centers of the world

Is Your Mill

"WARP WISE?"

You are if you're using

NALEX

(formerly AMYLEX)

the Quick-Cooking, Slow-Congealing Starch Product Made Exclusively for Cotton Warp Sizing

- *For Better Warps:*
  - Strong Film Forming
  - Good Penetration
  - Smooth Yarn Surfaces
- *For Defense:*
  - Saves Tallow
  - Speeds Production
  - Conserves Labor & Material

NALEX is particularly recommended for fine yarns and fabrics

NATIONAL STARCH PRODUCTS Inc.

820 GREENWICH STREET NEW YORK

Testing Sulphur-Dyed Goods

To determine amount of deterioration during storage

AN ACCELERATED AGEING TEST to determine the amount of deterioration which will take place over a given period of time in goods which have been dyed with sulphur colors has been worked out through the cooperation of officers and technicians of the Quartermaster Corps and members of the WPA.

The test, which was described by John L. Crist, of Southern Dyestuff Corp., at a recent meeting of the Piedmont Section of the American Association of Textile Chemists & Colorists, is as follows:

Goods to be tested are heated in an electric oven for 2 hr. at a temperature of 135° C. (275° F.) and then removed from the oven, allowed to cool to room temperature, exposed in an atmosphere of steam, as over a dyebath, for 10 minutes. They are then replaced in the oven at the temperature of 35° C. and subjected to this heat for an additional period of 2 hr. with subsequent steaming. This treatment is repeated the third time, making a total of 6 hr. of heating, with steaming after each heating. The goods are then allowed to condition in the open atmosphere for 18 hr. to regain normal moisture before they are subjected to breaking tests.

Breaking tests are made of both warp and filling (or on yarn if it is being tested) in sufficient number to obtain a dependable average. Similar breaking tests are conducted on a portion of the goods that was not subjected to the heat treatments. It is also desirable to run a blank check by heating a sample of the undyed goods, which has been similarly adjusted as to alkalinity along with the dyed sample. Break tests are conducted on the unheated undyed goods and also on the heated undyed goods and compared with the loss of strength of the dyed goods.

The percentage of strength remaining is calculated by dividing the remaining strength after heating, by the strength before heating. To be acceptable, goods should retain as much as 75% of their initial strength after this heating, which is considered to be equal to four and one-half years storage under normal conditions.

Since it has been found that the presence of organic or mineral acids in dyed and finished cotton goods will accelerate the tendering and that when these goods are finished to pH of 9 or above, there is no appreciable tendering, the following method of testing the pH of the goods has been developed. This procedure is intended to check dyed and finished cotton goods for residual acidity or alkalinity. A stock of distilled water containing a suitable wetting-out or penetrating agent to assure complete and rapid wetting-out, is prepared and adjusted to a pH of 9, with a dilute soda ash solution using a potentiometric or a colorimetric method of test.

A 10-gram sample of the goods to be tested is steeped in 150 c.c. of the 9 pH water for 1 hr. at room temperature (70° F.). Frequent stirring of the solution and goods is necessary to give accurate results. It is advisable to run a blank of water at the same time and under the same conditions as when the goods are steeped. After steeping the goods for 1 hr., they are removed and the pH of the water is again determined.

The final pH of all tested solutions should be 9 or above. Should the pH of the tested solutions be below 9, this is an indication that the goods contain some acid which will tend to accelerate tendering and the goods should be rejected. When the pH of the final solution is 9 or above, this is an indication that the goods are on the alkaline side and are therefore acceptable.

Stockings "in the service" . . . These are *your* stockings. Like you, they must serve well. The appealing beauty of the fabric is your assurance of steady sales at the hosiery counter. To produce a fabric that is clear, ringless and amazingly sheer, America's leading hosiery manufacturers depend on Royersford Needles. With Royersford Needles, they get finer qualities, more firsts, fewer seconds. After all, it's the needles that knit the stocking.

ROYERSFORD NEEDLES

ROYERSFORD NEEDLE WORKS, INC., Royersford, Pa. : Spring-Beard Needles, Points, Hooks, Sinkers, Dividers, Jacks, K. O. Bits and all accessories for Full-Fashioned Hosiery, Tompkins, Tricot and Milanese trades. Development Work Confidential.

BUILT RIGHT **KNITS RIGHT**

The big roomy outerdial gives Leighton Machines unexcelled

VERSATILITY

Garments of widely differing weights can be knit on the same cut

Freer Cam Action
Less Wear on Cams
Easier Stitch Formation
More Even Yarn Pull
Less Yarn Breakage

Rely on Leightons to produce superb and saleable Knitted Sportswear and other Outerwear Garments.

Leighton Machines are being used today to knit

NAVY WATCH CAPS
NAVY TRANSFER SWEATERS
ARMY HALF-CARDIGAN SWEATERS
ARMY AIR CORPS TRANSFER SWEATERS

and other Service garments

LEIGHTON MACHINE CO.
MANCHESTER, N. H.
EST. 1873 **INC. 1894**

N.E. Wage Goes to NWLB

Textile executives resist union demand for raise while ceiling holds prices

THE DEMAND of C.I.O.'s Textile Workers Union for a 10¢-an-hour wage increase from all New England cotton and rayon manufacturers has become a labor dispute and is on its way to the docket of the National War Labor Board, according to *Business Week*, which reports the situation as follows:

T.W.U. spokesmen and a committee of six industry representatives, headed by Robert Amory, Nashua Mfg. Co. president, met recently in the offices of the U. S. Conciliation Service in Washington. The union reiterated its demand for the wage boost and repeated the reasons for it which it offered in Boston previously when it met in a joint session with 75 textile mill executives. It told Government conciliators (1) that the earnings of New England cotton and rayon workers are abnormally low; (2) that these workers cannot maintain adequate living standards on their present earnings; (3) that cotton and rayon companies are able to pay a wage increase; (4) that the effect of wage increases on prices would be slight; (5) that the wage increase would not be inflationary.

To these contentions the employer committee replied (1) that wages in New England mills are already well above the rest of the country; (2) that the combination of high wages, greatly increased material costs, and low ceiling prices for mill products makes it impossible to grant wage increases; and (3) that Administrator Leon Henderson has "repeatedly insisted that blanket increases in wages should not be granted."

These claims and counter-claims were not offered in the hope of convincing anybody—not, at least, at this stage of the negotiating. They were points being made for the record. The employers did, however, win their basic contention that the disagreement was one for NWLB to consider. This meant that union pressure would be directed, not against the textile firms, but against a Government agency. And before the dispute is settled that Government agency may not be NWLB at all; it may be the Office of Price Administration.

Although the textile manufacturers issued a statement that they were "in entire agreement with the objective of the Price Administrator in trying to prevent, or at least control, inflation," they hastened to point out what they considered to be flaws in present textile price ceilings. They cited the fact that price ceilings for most fabrics made by New England mills were set last August and are essentially the basis of prices which prevail today, despite the fact that wage increases approximating 12% were given last September. They maintained that ceiling prices were based on low-cost mills, implying that such a standard was unduly severe on New England mills.

Though it was nowhere explicitly stated, textile employers said, in effect, that if NWLB directed them to grant wage increases, OPA would have to permit them to raise prices. Such a stand will be attacked by the union only if it is convinced that Henderson can't be budged. The union will raise no fundamental objections to passing the cost of a wage boost on to the industry's customers—if OPA permits it. As a matter of fact it may well be textile union representatives who turn out to be the most insistent advocates of price changes before the Henderson agency. But if Henderson can make it unequivocally clear that he will not entertain such suggestions, the union will turn on the employers, challenging their claims that under present price control they cannot absorb higher labor costs. How Washington deals with "T.W.U. vs. New England Textile Mills" may well define price and labor policy for the duration.

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ON RAYON HOSIERY USE THE SINGER 242

THE SINGER 242 machine was especially designed to produce seams of good quality on rayon, as well as cotton, wool and lisle hosiery.

It not only produces better seams which are stitched straight — but is the fastest hosiery seamer on the market today — simple to operate at speeds limited only by the operator's ability to guide the work.

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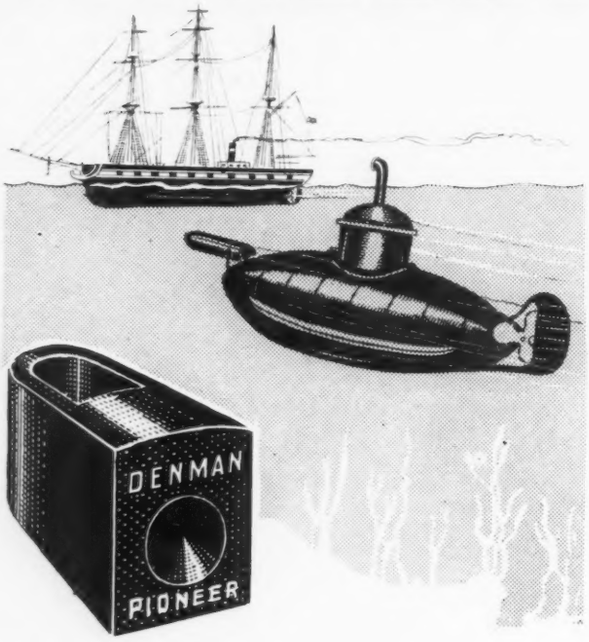
PIONEERS



The torpedoing of the U. S. S. Housatonic off Charleston, on the night of February 17, 1864, marks the first recorded submarine sinking of a warship. It signalized the introduction of a new type of craft into naval warfare.

In their field, DENMAN Quality Fabric Loom Parts likewise represent pioneer achievement. Year after year, consistent, low-cost, trouble-free service has distinguished their performance in the country's leading textile mills. And today, DENMAN Pickers are doing their part to maintain the high production of textile fabrics required for Defense purposes.

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Consumer Supply Adequate

No serious hardship in cotton textiles before 1943, says Scheuer

DESPITE UNPRECEDENTED war purchases of textiles, no vital consumer scarcity has occurred to date; spring consumer requirements seem adequate, and not before the fall of 1942 should spotty evidence of tightness appear in retail textile markets. Until 1943, consumer supply of cotton-textiles is likely to present no serious hardship. These are the principal conclusions reached by Scheuer & Co., New York, textile brokers and consultants, in an analysis of this situation.

"Spring consumer requirements seem adequate although a gradual reduction and ultimate elimination of present inventory holdings will result," the company states. "Civilian stocks of textiles are not low. This is particularly true of products which were slated to become scarce, such as sheets and pillowcases, corduroys, denims, etc.

"Not before the fall of 1942 should we begin to see some spotty evidence of tightness in retail textile markets, and by late fall most of the American military and naval needs, and planned replenishments thereof, will have been provided. Developments can occur between then and now which may change the estimates upon which these are based, as it did on Dec. 7 last, but such complete revisions are now much less likely than they were. The character of the war, where and how it is fought, will make new demands and reduce old ones. However, it is not probable that these will radically affect the overall total of military textile requirements. Additional supplies will be necessary in 1943, but tremendous re-equipment equal to our past and present basic program does not seem probable. On the other hand, if continued full-scale warfare throughout 1944 is indicated, new supplies comparable in quantity with the present dimensions will then be sought. By that time existing textile specification for the armed forces will in all likelihood be changed to more realistic and less extreme standards. This can make a substantial difference in the total annual yardage supply which can be produced.

"Our Lend-Lease obligations will increase during 1942 and 1943, although the serious limitation of shipping space will undoubtedly limit these to secondary priority. The military should not control the textile specifications of these requirements. An informed textile-wise board of strategy could and should create special and more realistic standards for these which would obviate unnecessary strain upon our domestic economy.

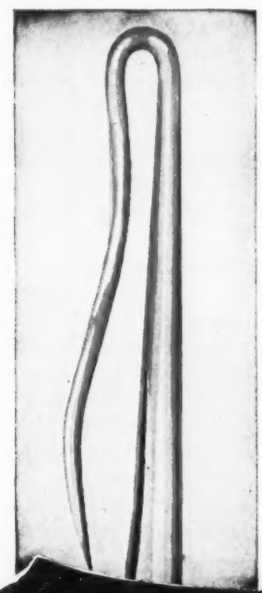
"The war's duration, then, is the chief long-pull textile problem insofar as civilian supply is concerned. Until 1943 consumer supply of cotton-textiles is likely to present no serious hardship. (The increasing tightness in rayon and spun-rayon fabrics will create a somewhat more serious problem, but adjustments in the construction of these have already been made which indicate considerable relief.) Thereafter, subject to the uncertainties cited, civilian textile starvation is distinctly avoidable. To be sure, assortments will be reduced, qualities standardized, and stock turnover will be at an unprecedented rate. This prospect may bring rationing, but if it comes it is likely to be accompanied by broad-scale rationing of many other major consumer commodities as well.

"If the textile resources of the country are organized, as they should and can be, consumer markets and most of the economic machinery upon which they are based should be able to carry on with a high degree of normalcy. Aside from the question of textile self-interest, it is imperative that as much normal activity in distribution as legitimately can be maintained, should be. To do less impairs the total war effort, undermines morale, overburdens our price control efforts so that they lose effectiveness, and creates avoidable after-war difficulties."

Why COOPER *means*

. . . NICER—SMOOTHER—KNITTING

. . . OF FASTER SELLING FABRIC . .



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Cooper High-Speed Latch Needles with Non-Turnable Rivets: Made from a special grade of needle steel which retains its strength during machining and tempering of most delicate parts. All tendency of rivet to turn and loosen (a common trouble in latch needles) prevented by specially designed, non-turnable rivet, exclusive with Cooper. Also designed to separate and hold the checks of needle permanently at same distance from each other, insuring free movement of latch. Accurate tempering and careful finishing produce a long-lived, reliable, uniform needle, capable of knitting exceptionally high-grade underwear, outerwear, and hosiery.

Cooper Spring-Beard Needles: Ever since its introduction as the first needle of this type made in the United States, the Cooper Spring-Beard Knitting Needle has maintained a position of leadership. Accurate and ingenious machinery converts specially prepared cast-steel wire into Cooper Needles. The manufacturing process includes particularly accurate tempering and rigid individual inspection of each needle. Precision measuring instruments supplement this inspection to insure absolute conformity to size and shape requirements.

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Ever take a piece of Cooper rib fabric in your hands, stretch it to double its normal width (while you feel every fiber of it pulling against you), and then release it? Snap! Back it goes instantly to its original width and appearance. You would think there must be rubber in it, but there isn't—this remarkable elasticity is due wholly to the fact that here we have not only a rib fabric, but a rib fabric made entirely on spring needles to which each loop is delivered without strain by a specially constructed yarn feeding device. Another, rib-top machine knits cuffs, collarettess, bottoms, borders, etc., plain or striped.

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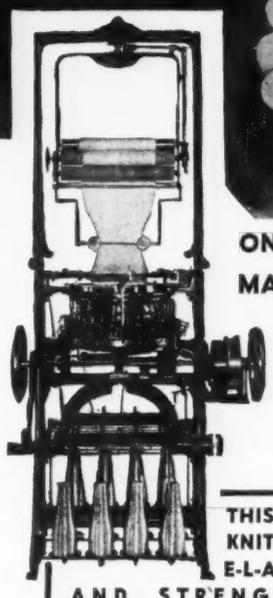

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They help your lamps to last longer!

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Even the annoying blinking and flickering at end of normal lamp life is eliminated and starter life is prolonged by using the "No-Blink" starter, developed and introduced by General Electric.

For economical, trouble-free lamp operation, specify G-E Starters for your fluorescent lighting equipment.

READ HOW TO SAVE ON FLUORESCENT LIGHTING

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GENERAL ELECTRIC

Addenda to Textile War Manual

(*Continued from page* 68)

prices under a temporary wool price schedule. So OPA rushed its studies, and on March 27 issued an amendment to Schedule No. 58, setting specific maximum price levels. Bids on the huge Army wool goods call were opened April 2. Generally higher prices are allowed under the new schedule than under the old. The order includes domestic pulled wool, scoured domestic shorn wool, wool tops and noils, wool yarns, all foreign pulled wool, South American shorn wool, and British Empire shorn wool. Wool wastes and other items not mentioned in the amendment are still frozen under the previous order.

Wool Rugs, Domestic—On March 9 a permanent maximum price regulation went into effect, covering sales by wholesale distributors of domestic wool rugs and carpets. The new regulation, No. 65 (Resale of Floor Coverings) supersedes a 60-day emergency ceiling imposed on Jan. 5, and its maximum price provisions are keyed with those set for sales of wool floor coverings by manufacturers in Price Schedule No. 57.

Wool, Shorn Domestic—Maximum Price Regulation No. 106, Domestic Shorn Wool, effective Feb. 28, applies to wool on a clean basis only, and does not establish a 37.1 ceiling for prices growers receive for greasy wool. In a clarifying Amendment No. 1 to Maximum Price Regulation No. 106, issued March 24 by OPA, it is made clear that the commission of not more than 1% permitted to be charged by the broker in addition to the applicable maximum price for shorn wool, may not be added by cooperative marketing associations or other agencies making sales of wool held on consignment from the grower.

New Army Orders Biggest Yet

(*Continued from page* 66)

are disappearing from the market, and all Nylon has been taken to make parachute cloth. The order provides for the replacement of silk and Nylon by rayon on a pound-for-pound basis.

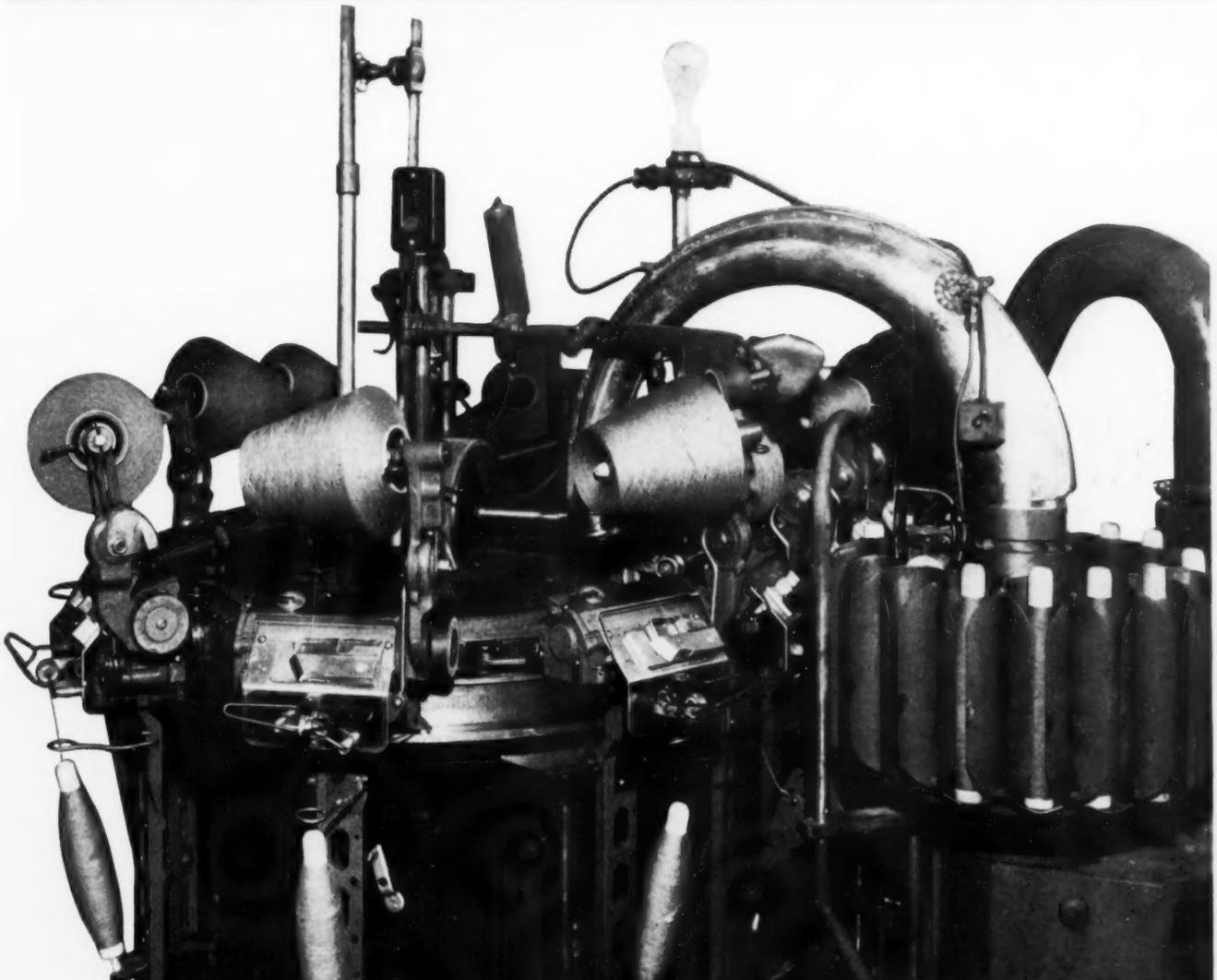
Quartermaster officers tell the writer that they are quite satisfied with the duck procurement program, which was reported in the March issue of TEXTILE WORLD. There is no change, they say, except that Army orders have been placed with converted rug and carpet mills. There was some difficulty about this, mostly due to high operating costs, they said.

Agricultural Department reports that the bagging of crops will come off pretty well with its allocation of one-third of the burlap; the other two-thirds go to the Army and Navy. Growers say they must have burlap to stand the stresses of bagging wool; most other crops are going into osnaburg.

Under the pressure of enormous orders for wool and cotton cloth, the textile industry must have machinery repairs, and WPB has raised from A-10 to A-8 the preference rating on deliveries of materials to producers of spare parts. The A-10 expired March 1 and Order P-53 has been amended to extend the plan to June 30, with the A-8.

Preliminary reports from Philadelphia stated that the Army requests for bids on 351,300,000 yd. of cotton goods which were opened by the Quartermaster Depot Mar. 31 had been seriously undersubscribed. Total offerings were said to have been about 150,000,000 yd., and the deficiency was explained in part because of the distant deliveries asked for on which mills could not figure costs and on the great poundage of combed yarn goods which it was said exceeded possible production. It was believed the Government will allocate the missing yardage to producers. The wool goods requirements were reported to have been met by offers.

Wind Knitting Cones at
1/3 YOUR PRESENT COST



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Desize with EXSIZE

Exsize is a standardized liquid concentrate of enzymes which converts starches and starch derivatives to readily soluble end products. Thus they can be quickly and completely removed with a minimum of rinsing.

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and Textile Warehouse Co., Greenville, S. C.

NEWS ABOUT MEN

Theophil H. Mueller has succeeded **Henry L. Van Praag** as president of Julius Kayser & Co., New York. Mr. Van Praag becomes chairman of the board, a newly-created post. **Ralph H. Baruth** is now first vice-president of the company. Both Mr. Mueller and Mr. Baruth were previously vice-presidents.

T. H. MUELLER, newly elected president of Julius Kayser & Co.

Norman Elsas, president of Fulton Bag & Cotton Mills, Atlanta, Ga., has been elected president of the Associated Industries of Georgia. Among the directors elected for 1942 are **Richard C. Jones,** Tubize Chatillon Corp.; **Marshall Stone,** Gainesville Cotton Mills; **A. H. Reu,** Hercules Powder Co.; **Edmund F. Cook,** Batson-Cook Co.; **R. P. Shappard, Jr.,** Spalding Knitting Mills.

Samuel C. Feuerstein has been elected president of Malden (Mass.) Knitting Mills, succeeding his father, the late Henry Feuerstein. He retains his post as treasurer.

Durham Jones, of Hallowell, Jones & Donald, was elected president of the National Wool Trade Association, at Boston, March 3. **H. Clyde Moore** was elected vice-president.

Dr. A. J. L. Moritz, technical vice-president of American Enka Corp., Enka, N. C., has been named treasurer of the corporation, succeeding the late J. T. Johnson. **C. Vanderhooven** continues as secretary and assistant treasurer.

R. S. Jeffcoat, secretary and treasurer of the Opp and Micolas Mills, Opp, Ala., has been elected executive vice-president.

George A. Sloan, former president of the Cotton-Textile Institute, has been appointed president of the Nutrition Foundation, whose function it is to coordinate scientific research by Government and semi-public institutions, industry and the units comprising these divisions. **Dr. Karl T. Crompton,** president of the M. I. T., is president of the board of the Foundation.

Arthur L. Burnet, Jr., is the new general superintendent of the cotton yarn mills of the Burlington Mills Corp. at Fayetteville and Smithfield, N. C.

Charles B. Rockwell, treasurer of Collins & Aikman Co., Bristol, R. I., has been transferred to the executive offices of the company in New York City, and **Norton M. Zinderstein** of the Bristol staff has been appointed to do special work in the New York office for **W. G. McCullough,** president. Henceforth the Rhode Island spinning division will be in charge of **Joseph H. Farrell,** resident manager. **Robert MacFayden,** formerly assistant manager, becomes resident manager of the Rhode Island weaving division, and **M. H. Reese,** assistant manager.

George P. Torrence, chief engineer of Industrial Rayon Corp. and vice-president and general manager of its subsidiary, Rayon Machinery Corp., has been named Chief of the Materials Disposition Section of the Inventory and Requisitioning Branch of the War Production Board, Washington.

A. A. Munster was elected president of Canadian Silk Products Ltd., Sherbrooke, Que., on Mar. 2, succeeding the late Edgar J. Thompson. Mr. Munster retains his position as treasurer of the company. Other officers appointed follow: vice-president, G. S. Westgate; secretary, G. G. Cooke; assistant secretary, F. C. Tanner; assistant treasurer, M. D. Gordon.

John W. Clark, president and treasurer of Randolph Mills, Inc., Franklinville, N. C., who has been receiver for Locke Cotton Mills, Concord, N. C., has been elected president and treasurer of the company, since it has been taken out of receivership.

J. Lee Bausher, president of Infants Socks, Reading, Pa., was elected a member of the executive committee of the Pennsylvania Manufacturers' Association at its 26th annual meeting in Philadelphia, Pa.

F. M. Kimble, Jr., has be-

UNION SPECIAL

PHOTO: Binding necks and armholes of Army Undershirts.

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FOR SEWED SEAMS . .

✔ *Efficiency*

FOR PRODUCTION DEPARTMENTS

BECAUSE the average *machine sewed seam* is so unobtrusive, probably few people realize what a vast number of products depend on it for some part of their construction —countless industrial products, basic necessities of life for mankind, and NOW a vital list of military supplies: Uniforms . . . Underwear . . . Work clothing . . . Sox . . . Shoes . . . Caps . . . Gloves . . . Tents . . . Tarpaulins . . . Bedding . . . Leather Goods . . . Seat Coverings . . . Powder Bags . . . Parachutes . . . Bags for Feed, Sand, Ammunition.

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Union Special contributions include improvement and development of many different types of stitches and seams as an aid to *greater* strength and durability. Equally important has been the development of special types of industrial sewing machines to *increase* production efficiency. And to enable Industry to take full advantage of this service, Union Special has built up a large field organization devoted *exclusively* to industrial sewing machines.

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UNION SPECIAL

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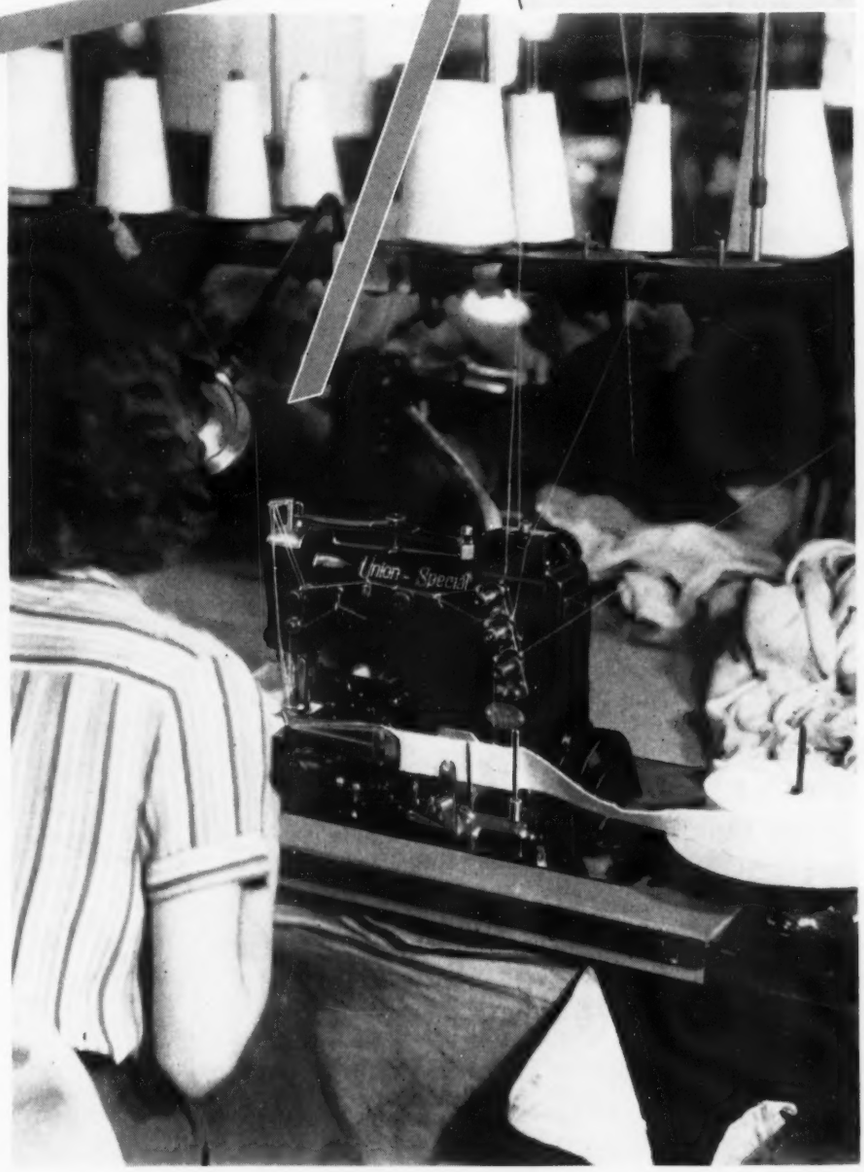

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Company _____

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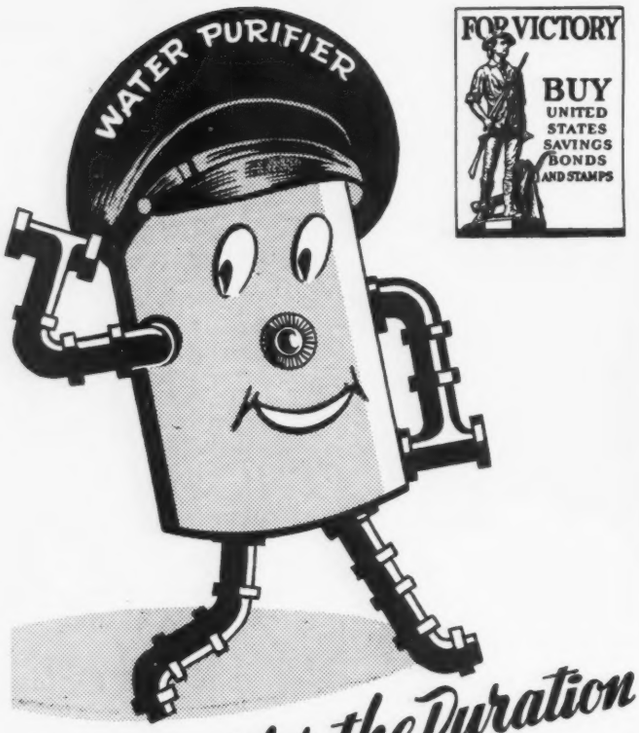

Enlisted for the Duration

Many water purifying systems today will have to serve for the duration. Replacement of this equipment during wartime will be difficult to say the least. With production schedules of textiles calling for even greater speed and performance from every department and every machine—you may wonder just how in the ———— your water purification system can last out the duration! We don't know when the war will end and we don't work miracles but we do know that

H & T Inspection & Check-Up Service

will help keep your existing equipment repaired and in good operating condition, ——— help keep it up to full capacity and efficiency.

Upon request and without cost to you a nearby H & T engineer will go over your water purification plant inside and out. His report and recommendation for rejuvenating the system will be turned over to you without fee or obligation. Perhaps he will find it "OK as is", but it's good to know—not guess—about the condition of your present water purification equipment and the purity of your water supply. Let us help enlist your equipment for the duration.

HUNGERFORD & TERRY, INC.

Mfgs. of Water Filters and Water Softeners

CLAYTON, NEW JERSEY

WATER PURIFICATION PLANTS

HENRY T. MILLS, left, textile stocks and bonds; JOHN W. ARRINGTON, JR., center, vice-president of Union Bleachery; and EDWIN HOWARD, manager for Veeder-Root, were awarded honor buttons for 25 years of consecutive service in the Rotary Club. FRED SYMMES, Union-Buffalo president and former president of the American Cotton Manufacturers Association, was also awarded a button, but was unable to attend the ceremonies and receive it.

come president of Mandeville Mills, Carrollton, Ga. Mr. Kimble is the son of **F. M. Kimble,** general manager and treasurer of Poulan (Ga.) Cotton Mills.

Mrs. C. W. Mizell has been elected president of Opp Cotton Mill and Micolas Cotton Mills, both at Opp, Ala., succeeding her husband, the late C. W. Mizell.

William E. Russell, proprietor of the Capital Awning Co. of Washington, D. C., has gone on duty with the Office of the Quartermaster General in Washington as technical consultant on the fabrication of duck products. At QM he is associated with **Lt. Col. Robert T. Stevens,** chief of the new Textile Requirements Section of the Quartermaster. Mr. Russell is in his second term as president of the National Canvas Goods Manufacturers Association.

Thomas J. Wallner has resigned as president and a director of the Carroll Silk Hosiery Mills, Hillsville, Va., having sold his interest in the plant to New York parties.

H. Stanley Marcus, who has been women's apparel consultant to the War Production Board at Washington, has become chief of the entire apparel division including men's, boys', women's and children's clothing, hosiery, knit goods, etc. **Morton J. Baum** continues with the division as men's clothing consultant in association with Mr. Marcus.

Paul B. Halstead, secretary of the Cotton-Textile Institute, New York, has been appointed special adviser of the planning and control division of the Quartermaster Corps, Washington, D. C.

Davis Hallowell, until recently with Wellington Sears Co., New York, has been appointed chief of the Woven Cotton Goods Unit, OPA, Washington.

Houlder Hudgins, president of the Sloane-Blabon Corp., New York, deputy director of purchases, WPB, is now acting chief following the transfer of Douglas C. MacKeachie, director of purchases to the War Department for liaison with WPB for all army procurement.

William A. Broadhead has resigned as superintendent of Jamestown (N. Y.) Worsted Mills, to become general manager of Glenside Mills, Skaneateles Falls, N. Y.

L. Metcalfe Walling of Rhode Island has been appointed Administrator of the Wage & Hour Division of the Labor Department with headquarters in New York. He succeeds **Thomas W. Holland.**

Harry Schneider, recently returned from a year's active service as first lieutenant in the Fifth Armored Tank Corps Division, is now with the Aspinook Corp., New York.

H. W. Flynn has become manager of Celanese Lanese Corp., Burlington, N. C.

Robert T. Bowe of Hesslein & Co., has resigned to join his brother **William F. Bowe,** of Augusta, Ga., in the paving contracting business. Mr. Bowe had previously been for more than 20 years with the old Hunter Mfg. & Commission Co.

Standish W. Holmes, for twelve years with the advertis-

for every FABRIC she can wear

Many and varied are the new fabrics Miss Wartime America is wearing this spring . . . other new ones will certainly be introduced to her in the days ahead as the ingenuity of the textile industry and the designers is brought into full play. Whatever the combinations may be in which the fibres are to be blended, there will be, as there has been for years past, a DuraBeau Finish available . . . tailored to fit the individual fabrics . . . to provide lasting beauty and added wear.

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REG. U. S. AND CANADA

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FOR	Dyeing Hypochlorite bleaching Kier boiling Mercerizing Neutralizing	USE SOLVAY CAUSTIC SODA
FOR	Hypochlorite bleaching Oriental rug finishing Water conditioning	USE SOLVAY LIQUID CHLORINE
FOR	Mothproofing	USE SOLVAY PARA-DICHLOROBENZENE
FOR	Dyeing Softening	USE SOLVAY POTASSIUM CARBONATE
FOR	Acid neutralizing Degumming Fulling Scouring Soap building Softening	USE SOLVAY SNOWFLAKE CRYSTALS
FOR	Acid neutralizing Fulling Hypochlorite bleaching Kier boiling Scouring Soap building Water conditioning	USE SOLVAY SODA ASH
FOR	Dyeing	USE SOLVAY SODIUM NITRITE
FOR	Acid neutralizing Degumming Fulling Scouring Soap building Softening	USE SOLVAY TEXTILE SODA

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NEWS ABOUT MEN

ing department of American Viscose Corp., New York, has been transferred to the company's Fibro rayon staple fiber sales division.

Furman G. Carroll, of the Sales Development Department of American Viscose Corp., New York, has been transferred to the company's Marcus Hook, Pa., plant as manufacturing superintendent. Mr. Carroll was at one time overseer of spinning, winding and dyeing at Judson Mills, Greenville, S. C.

Arthur L. Burnet, Jr., has been appointed general superintendent of the cotton yarn mills of Burlington Mills Corp., at Fayetteville and Smithfield, N. C. Mr. Burnet was for five years with the Ware Shoals Mfg. Co.

Frank Pate, for the last 11 years assistant superintendent of the Shawmut Mill division of West Point Mfg. Co., was recently transferred to Athens, Ga., as treasurer of Wehadkee Yarn Mill and Mallison Braided Cord Co.

Harry C. Oppenheimer of Brand & Oppenheimer, New York, has joined the staff of OPA, Washington, and it is understood that he will take over work in connection with preparation for ceilings on finishing prices.

C. W. Lively, Greenville, S. C., was recently elected secretary, of Pisgah Mills, Brevard, N. C., and **W. M. Melton** was relected vice-president and general manager. **C. F. Williams** is the president.

Howard Aborn has succeeded **Richard W. Freeman** as head of the New England sales office, Pepperell Mfg. Co., in Boston. Mr. Freeman is now New England textile representative for the OPA.

J. K. Pittman, a textile graduate of North Carolina State College, Raleigh, has been elected secretary of Locke Cotton Mill, Concord, N. C.

Woodrow W. Edwards, formerly of Martha Mills, Thomaston, Ga., has become research engineer, Springs Cotton Mills No. 1, Fort Mill, S. C.

C. F. Orr has become general manager of Waverly Braid Mills, Gastonia, N. C.

J. R. Rice has accepted position of general manager of Randleman (N.C.) Mills, Inc.

Allen Sibley, treasurer of Judson Mills, Greenville, S. C., is the newly appointed industrial plant protection officer of the Greenville Citizens Defense Corps.

Thomas Coskreu of the solvent plant, Arlington Mills, Lawrence, Mass., and **F. Willis Haycock,** chief watchman were lately awarded 45-year service pins. The company awards service pins for 10 years and upward. There are 221 members of this group.

Fred Spurr has become superintendent of Blackinton (Mass.) Woolen Mills.

J. B. Bell, formerly overseer carding, American Yarn & Processing Co., Mt. Holly, N. C., has become superintendent of No. 1 & 2 Carding, Riverside & Dan River Cotton Mills, Schoolfield, Va.

G. H. Mahaffee, formerly overseer carding, Alexander Mills, Forest City, N. C., has become superintendent of carding at Mills Nos. 2, 3, 5 and 7, Riverside & Dan River Cotton Mills, Danville, Va.

G. H. Lollis, formerly overseer of weaving Consolidated Textile Corp., Lynchburg, Va., has become assistant superintendent of weaving, Mills Nos. 1 & 2, Riverside & Dan River Cotton Mills, Schoolfield, Va.

J. W. Bunton has become overseer of weaving at the Gayle plant of Springs Cotton Mills, Chester, S. C.

F. P. Bodenheimer has accepted the superintendency of Quaker Meadow Mills, Inc., Hildebran, N. C.

George W. Wright, formerly of Modena Mills, Gastonia, N. C., and **W. Hartselle Deason,** of Excelsior Mills, Union, S. C., have been appointed second hands of carding, Spring Cotton Mills No. 1, Fort Mill, S. C., succeeding **L. D. Putnam,** who has accepted the position as overseer carding, Chadwick-Hoskins Mills No. 5, Pineville, N. C., and **James A. Waters** who was inducted into the Army after having been given two deferments.

T. P. Taylor formerly superintendent of preparation Spindale (N. C.) Mills has become superintendent No. 1 & 2 carding and spinning, Dan River Division, Riverside & Dan River Cotton Mills, Danville, Va.

Glenn R. Hooper has become superintendent of Freida Mfg. Co., Crowder's Mountain, N. C.

W. T. Wood is now superintendent of the Nylon unit of E. I. du Pont de Nemours & Co., Martinsville, Va.

J. E. Duncan, formerly of Thomaston, Ga., has become night superintendent of Pepperton Cotton Mills, Jackson, Ga.

Houston F. Harris, formerly with Belmont, N. C., unit of Burlington (N. C.) Mills, has become overseer of carding, spinning, twisting and

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Established 1893

PROCESSING Rayon and Nylon Yarns

for Hosiery Knitting Trade

We take pleasure in announcing that we are in a position to deliver high twist rayon specially processed for the hosiery trade by the new "AVCONIT No. 1" process.

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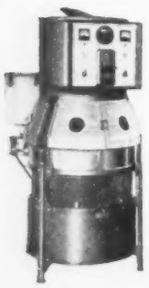

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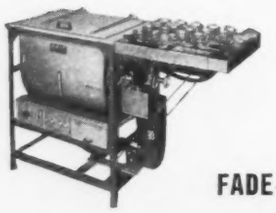

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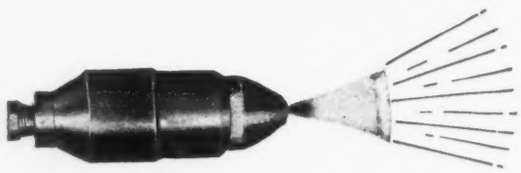

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Today, the goal of every mill is maximum production with lowest waste. Material must be conserved, schedules maintained with highest efficiency.

A Rihco system of Type B atomizers boosts production, gives just the right humidity conditions, and does this at lower cost than ever before, because the Rihco principle of operation is based on a different way of vaporizing water, a way that requires far less air, far less initial equipment to obtain the same results.

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Greenwood, S. C.

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Philadelphia, Pa.

NEWS ABOUT MEN

warping at Greenville (S. C.) Spinners.

J. H. Yoakum has resigned as overseer of weaving at the Dan River unit of Riverside & Dan River Cotton Mills, Schoolfield, Va., and has become overseer of weaving at the Granby plant of Pacific Mills, Columbia, S. C.

W. C. Dobbins, Jr., has resigned as paymaster for Joanna Textile Mills Co., Goldville, S. C.

G. Smith, who has been assistant superintendent of Pepperell Mfg. Co., Lindale, Ga., has been promoted to superintendent.

S. F. Burtis is superintendent of the newly-established Nylon throwing plant of Duplan Corp., Winston-Salem, N.C.

Timothy L. McCarthy, for the last 14 years superintendent of Meredith (N. H.) Linen Mills, has resigned. He had a record of 33 years' service with the concern, and took only one vacation in this long period. The mills were recently purchased by Hesky Flax Co., Ltd., of Toronto.

B. L. Quick has resigned as overseer of carding at the No. 1 plant of Chadwick-Hoskins Co., Charlotte, N. C., and has become overseer of carding at Courtenay Mfg. Co., Newry, S. C.

L. D. Putnam has resigned his position with Springs Cotton Mills, Fort Mill, S. C., and has become overseer of carding at Chadwick-Hoskins Co., Pineville, N. C., unit.

C. E. Davis, formerly of Charlotte, N. C., has become overseer of spinning at Cedartown (Ga.) Yarn Mills.

W. S. Gantt, formerly of Magnolia, Ark., has accepted position of second hand in spinning at No. 2 mill of Rhodhiss (N. C.) Mills Co.

James P. Sloan, formerly of Clinton, S. C., has become paymaster for Joanna Textile Mills Co., Goldville, S. C.

N. P. Bumgardner, formerly superintendent of Adrian-Madora Mills, Mount Holly, N. C., more recently of Columbia, S. C., has been elected superintendent of Superior Yarn Mills, Tuckaseege, N. C., succeeding the late Robert Haynie.

D. M. Williams has been elected superintendent of Adrian-Madora Mills, Mount Holly, N. C., succeeding **Ward Bushee,** who resigned to accept a similar position with the Bay State Thread Co., Springfield, Mass.

J. F. Weir, formerly of Clinton, S. C., has become overseer of carding and spinning at Santee Mills, Bamberg, S. C.

V. D. Snyder, formerly with Mathews Mill, Greenwood, S. C., has become general overseer of weaving at Erlanger Mills, Inc., Lexington, N. C.

Eric Wall, formerly of Burlington, N. C., has become assistant to the overseer of twisting and winding at Greenville (S. C.) Spinners, Inc.

J. E. Miller, who has been office manager of Callaway Mills, Milstead, Ga., plant, has been promoted to overseer of weaving at the same mill.

P. J. Gwinn has accepted the position of overseer of weaving at Prattville (Ala.) Cotton Mill.

A. H. Holt has been promoted to assistant superintendent of Scottdale (Ga.) Mills.

J. R. Daniel has resigned his position with Jefferson Mills, Royston, Ga., and become overseer of twisting at Tifton (Ga.) Cotton Mills.

J. D. Moon has accepted position of overseer of weaving at Geneva (Ala.) Cotton Mills. He was formerly with Avondale Mills, Birmingham, Ala.

W. J. Nipper has resigned his position with Mercury Mills, Charlotte, N. C., and become overseer of carding at Martel Mills, Asheville, N. C.

Hugh Ballard has been appointed superintendent of Park Yarn Mills Co., Kings Mountain, N. C., succeeding **J. C. Keller,** resigned.

J. C. Upchurch, formerly of Charlotte, N. C., has accepted position of manager of Winton Mills, Fort Valley, Ga.

L. E. Lane has become superintendent of Piedmont Mills, Egan, Ga.

C. H. McElroy has accepted position of overseer of carding at Morgan Mills, Quitman, Ga.

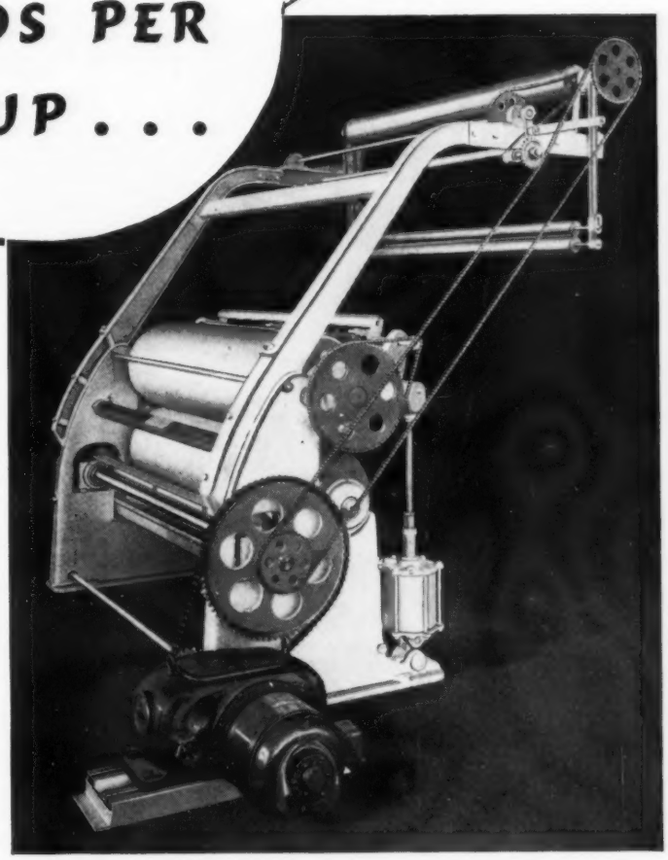
R. T. James has been promoted to superintendent of Enterprise (Ala.) Mfg. Co.

Lawrence Webb has become overseer of carding at Tifton (Ga.) Mills.

Robert S. Mebane has resigned as night overseer of carding at Pacific Mills, Lyman, S. C., to become general overseer of carding at No. 1 mill of Riverside & Dan River Cotton Mills, Danville, Va.

J. T. Fry, formerly overseer of weaving at Mills No. 1 and No. 2, Graniteville (S.C.) Co., has been appointed assistant superintendent of Sibley Mill of the same company, Augusta, Ga.

HOW TO EXTRACT MOISTURE FROM CLOTH UNIFORMLY AT SPEEDS FROM 45 YARDS PER MINUTE AND UP . . .



For the Plant . . SEEKING more uniform extracting with a higher percentage of moisture removed from all woven fabrics, the economical solution will be found in the new Hunter Model G Pneumatically Controlled Squeeze Rolls.

THIS new model may be used as a separate unit, in combination with a scutcher, in continuous cloth carbonizing or washer lines, on tracks in wet finishing rooms, or in front of cloth tentering machines.

It is adaptable to any woven fabric, either flat or pile type, cotton, rayons, woolens, worsteds, and blended or manipulated fabrics. It will extract cloth down to 50% to 60% moisture content on the dry basis at continuous running speeds of over 25 yards per minute.

For complete details of individual applications of the Hunter Pneumatically Controlled Squeeze Rolls in a variety of plants, write

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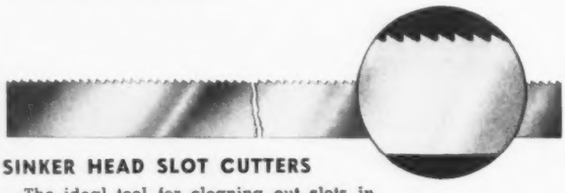
Accurately made from high grade material—built to last and to hold its shape.

Send for bulletin giving full details on these and other products.



SINKER HEAD SLOT CUTTERS

The ideal tool for cleaning out slots in sinker and divider heads. Made in all gauges. Each one comes in a leather carrying case.

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STEEL PRODUCTS COMPANY
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Textile Men in Armed Services

Herbert Gruber, of the shirting department at Cohn-Hall-Marx Co., New York, has been assigned to the Cavalry Division at Fort Myer, Va.

Stanley A. Mirvis, of Southern Products Co., Atlanta, Ga., left to join the Army on March 21.

Edmund A. Marcusson, of Wellington Sears Co., New York, is now in the Army at Camp Dix, N. J.

Glenn L. Maveety, New England representative of Joseph Klumpp Co., Philadelphia, has resigned to enter the Navy.

Joseph B. Pope, of Ewing-Thomas Corp., Chester, Pa., has gone to Washington as a civilian aide to General James L. Frinck, head of the motor transport division of Quartermaster Corps.

Francis R. Masters, lately an executive with Joshua L. Baily & Co., New York, has been commissioned lieutenant colonel in the Army and is now on active duty somewhere in the Pacific. In the last war Colonel Masters served for over a year in France.

William G. Ashmore, until recently southern editor of TEXTILE WORLD, who has been lieutenant in the textile priorities division of the Quartermaster Corps at Washington, D. C., for a number of months, has been promoted to the rank of captain.

H. S. Elliott of LaGrange, Ga. has been called to active duty at Aberdeen, Md., as lieutenant in the Ordnance Department. Lieut. Elliott was formerly a southern representative for Mill Devices Co. and Carter Traveler Co., divisions of A. B. Carter, Inc., Gastonia, N. C.

Colonel Vere Painter, of Quartermaster Corps, Philadelphia, is now in general charge of both the Inspection Division and the Promotion and Research Division. Assisting him, **Colonel Harold Manderbach** will be directly in charge of inspection, and **Major Frank M. Steadman** will be directly in charge of promotion and research. **Capt. Albert E. Dennis,** assistant to the contracting officer at Philadelphia QM has been promoted to major.

Lloyd Munch, formerly stock-keeper in the Hespelier (Ontario) plant of Dominion Woolens & Worsteds, Ltd., has joined the Royal Canadian Navy and is now at the naval barracks, Windsor, Ont.

William Prendergast, of H. Prendergast & Co., Bridgeton, R. I., has been inducted into the U. S. Naval Air Force and is assigned to Pensacola.

Maurice G. Phillips, assistant superintendent and designer for Dodge-Davis Mfg. Co., Bristol, N. H., left recently to join the Field Artillery at Fort Bragg, N. C.

Fletcher Horn, staff member of the Celanese Corp. of America, Cumberland, Md., has been called into active service in the Army and is now stationed at Fort Dix, N. J.

Henry B. Thompson, Jr., of the Brighton rayon gray goods division of McCampbell & Co., New York, has entered active service in the Army as captain in the Air Corps.

Robert H. Hope, superintendent of Jackson Mills, Wellford, S. C., No. 2 unit, has been ordered to military service as lieutenant and is now stationed at Fort Jackson, S. C.

Forrest U. Webster, past president of National Industrial Advertisers Association and account executive of McManus, John & Adams, Detroit, has been ordered to active duty under his commission as Captain, Field Artillery Reserve. He has been assigned to the Ft. Wayne (Mich.) Motor Supply Depot.

Arthur Goodfriend, for many years associated with the advertising and promotion of Palm Beach clothing, New York, has been called to active duty with the Army. He is a second lieutenant at Camp Lee, Va.

Irving Stern, of Davis & Catterall, New York, joined the Army last month.

Lionel P. Adams, secretary of the Textile Export Association of the United States, New York, has been commissioned a second lieutenant in U. S. Army Air Corps, reporting for duty April 2. During his absence his duties will be assumed by **John W. Murray,** editorial director of the Cotton-Textile Institute.

Harold M. Clark, a superintendent at Avondale Mills, Birmingham, Ala., has been called to active duty. He was a reserve Army officer. He reports to Ft. McClellan.

Unity of purpose and concentration of effort bring results in the manufacture of slashers as they do in waging war.

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Because Johnson has always studied one process exclusively and provided equipment for that process only, Johnson Rayon Warp Sizers provide everything industry needs, for better and better slashing and faster and faster production to win the war and the peace to follow it.

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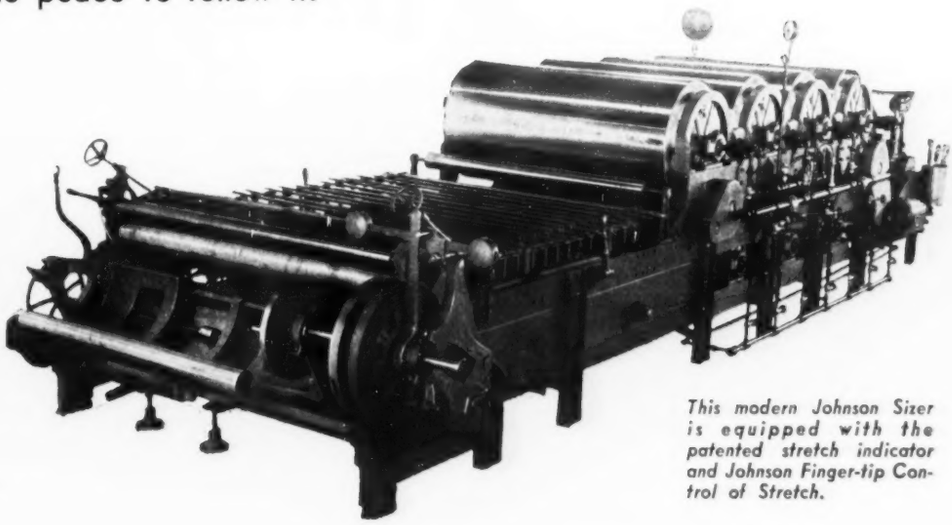
give you maximum drying surface of 7 oversize cylinders. Their special features include super - pressure quetsch individual temperature controls on all cylinders, extra heavy drive and new heavier take up end, and many others.



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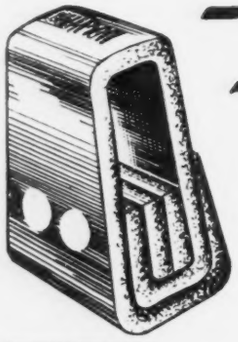

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If it is not better made, or better designed for its use, it is not a Champion product.

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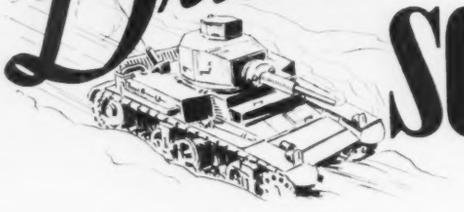

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Obituary

C. Walter Lotte, 47, president of Lotte Chemical Co., Paterson, N. J., and previously at one time manager of the Dundee, N. J., plant of National Silk Dyeing Co., died March 20. He had held numerous civic offices and was lately member of the Paterson Board of Finance.

Francis Taylor Maxwell, 81, who before his retirement in 1934 was for 57 years president of the Hockanum Worsted Co., Rockville, Conn., died at Phoenix, Ariz., March 23. During his business career he was associated with several banks and insurance companies as well as textile firms. He was a former president of the National Association of Wool Manufacturers.

Frederick W. Smith, 66, founder and president of the New England Machine & Electric Co., Pawtucket, R. I., and for many years prominent in industrial plant electrification in southern New England, died in Pawtucket, March 13.

Patrick T. Walsh, 81, president of Eastern Felt Co., manufacturers of polishing wheels and sheet felt, Winchester, Mass., died March 17.

Edward T. Fishwick, senior vice-president and director of Worthington Pump & Machinery Corp., Harrison, N. J., died March 15 at his home in Glen Ridge, N. J.

Lloyd B. Edgerton, 55, vice-president of Philadelphia Quartz Co., Philadelphia, Pa., died March 15. He joined the company in 1913.

Clarence Edward Perkins, 70, vice-president of the B. J. Baker Co., Boston, and a director of Everlastik, Inc., Chelsea, Mass., died at Winthrop, Mass., on March 3.

James W. Anthony, 67, for many years partner in the former Byron W. Anthony Mill Supply Co., Fall River, Mass., died Mar. 24.

Harry T. Viall, 54, for many years active in the New York Dry Goods market, having been associated with Bliss Fabyan & Co., Esmond Mills, and others, died at Hillside Heights, N. Y., March 22.

Clinton Mansfield Woodford, 73, partner of the old firm of Haines, Moorehouse & Woodford, died last month in New York.

W. R. McMurray, 85, head of the linen house of J. S. Brown & Sons, Belfast, Ireland, and of Brown Shamrock Linens, Ltd., New York, died recently in Ireland.

Milton Ensor, who operated a textile equipment firm at Lincolnton, N. C., since 1934, died at his home last month. He had been an executive of various cotton mills for nearly 30 years before going into the machinery business.

Charles W. Watson, president of the linen firm of Watson & Meder, New York, died at Miami, Fla., early last month.

Charles Talbot Richmond, 72, New England selling agent for the Crompton Co., died in Providence, R. I., March 2. He had been with the company for 50 years.

Arthur Joel, 76, of Arthur Joel & Co., New York, died early last month. He had been in the selling end of the wool goods business for over 50 years.

Gustav Eggena, 64, for many years in charge of sales and credits for Katakura & Co., New York, at one time one of the largest importers of silk, died recently.

Mortimer Goldsmith, 59, vice-president of Hess, Goldsmith & Co., New York, died in Wilkes-Barre, Pa. March 24. He had been with the company for 15 years, and was in charge of the company's mill operations at Wilkes-Barre.

Cyril P. Murphy, 42, yarn representative in Philadelphia for the American Woolen Co., died March 19.

Edward B. Gaylord, 80, president of Winsted (Conn.) Hosiery Co., died while on vacation at Clearwater, Fla., on March 20. He joined the Winsted Company 58 years ago.

Frank W. Wheeler, 57, textile machinery broker, Philadelphia for 33 years died March 3.

G. Russell Goff, 61, treasurer and a director of the Draper Corp., Hopedale, Mass., died March 14. He joined the Draper organization in 1900 as a bookkeeper.

A. H. Patten, secretary of American Finishing Co., Memphis, Tenn., until his retirement about a year ago, died recently at his home.

Hyman Starr, 78, founder and retired president of Starr Knitting Mills, New York died at St. Petersburg, Fla., March 18.

*Like a SABOTEUR in the shipping Room –

*Lack of proper protection . . . while in transit, or in storage

Faulty packing, insecure wrapping or improper materials can cause as much damage and delay as *deliberate* sabotage. Goods damaged in shipment cost this nation badly needed materials and man-hours of labor. They waste valuable shipping space in train, truck or boat, and their failure at a critical time, when needed most, may prove a disaster.

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Production of FIBREEN is now being diverted to uses essential to the war program. If your products fall in this class—if you're interested in better packing methods and materials — we will try to help you. Write, explaining what you ship, and how you now pack it.

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Sensitive Control—Better Evaporation

The new Southworth Humidifier is even better than previous models. It is quiet, more efficient, durable. Entirely self-contained, with separate meter on each unit, or can use independent sources of power. Airplane type propeller fan gives better air movement and evaporation. Sensitive control responds to slightest atmospheric changes *at point* of installation. Practically no maintenance cost—no parts to rust or corrode. Complete data will be gladly sent at once—and we will also be pleased to suggest the best arrangement of unit to fit your own requirements—without obligation on your part, of course. Write today.

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W C W INC.

WILLIAM WHITMAN COMPANY, INC.
NEW YORK BOSTON PHILADELPHIA CHARLOTTE

NEWS ABOUT MEN

Charles W. Mann, treasurer of Real Silk Hosiery Mills, Indianapolis, Ind., died recently in that city.

James W. Daniel, aged 75, secretary of the Sterling Cotton Mills, Franklin, N. C., a post he had held for the last 46 years, died March 20.

Louis Henry Fitch, 82, former vice-president and head of the worsted yarn department, William Whitman Co., Boston, died at Southern Pines, N. C., on March 24.

Lewis Balch, 81, former member of the Boston wool house of Joseph H. Wheelock & Co., died at his home in Brookline, Mass., on March 24.

Harrison C. Cole, Charlotte, N. C., for last 35 years connected with the Saco Lowell Shops, as manager of the service department for the South, died suddenly in Atlanta, Ga., March 24 while on a business trip.

Hugh M. Love, 89, a founder of the Brower & Love Bros. Co., cotton mills, now known as the Indianapolis Bleaching Co., died recently in Indianapolis.

Walter Bassett, 84, pioneer manufacturer of textile softeners and soap, died at his home in Taunton, Mass., on March 13.

Robert Arthur Haynie, 41, superintendent of Tuckaseege Mills, Mount Holly, N. C., died Feb. 22.

Frederick Loring Seely, 70, for a number of years operator of Biltmore Industries, Asheville, N. C., makers of home-spun cloth, died in Asheville late last month.

J. Edgar Young, 60, president and treasurer of Hagerstown (Md.) Hosiery Co., died late last month.

Alfred S. Schantz, 76, operator of Schantz Silk Mills, Greenville, Pa., died recently.

Frank L. Bowers, 76, financial secretary of Duffy Silk Co. and secretary of Millfay Mfg. Co., Buffalo, N. Y., died recently.

Daniel J. Leidy, 64, died March 9 in Boyertown, Pa. Mr. Leidy was for 42 years up to the time of his death foreman of the cloth department of the Boyertown Burial Casket Co.

John A. Gerstle, 74, died March 10 in Reading, Pa. He was for many years a foreman at Rosedale Knitting Co., Inc. Reading, Pa., but recently retired.

Frederich Vollmer, Sr., 78, foreman for 20 years in Narrow Fabric Co., "Wyomissing," Reading, Pa., who recently retired, died March 10.

George Kemp, a former overseer at Wood Worsted Mills in Lawrence, Mass., is dead in Kingston, N. H., where he had lived since his retirement 10 years ago.

Ralph Vine, 61, for 22 years superintendent of looping and seaming of Rosedale Knitting Mills, Reading, Pa., died March 13.

Joseph George Moye, 81, former president of Greenville (N.C.) Cotton Mills, died recently.

Austin Blake Mason, 56, director and former treasurer of Massachusetts Mohair Plush Co., Lowell, died at Weston, Mass., recently.

Percy L. Kent, 63, identified during his business career with the cotton mills of New Bedford, died Feb. 24. He retired as treasurer of Potomska Mills in 1925.

George Edwards Clement, 64, president of Raynham (Mass.) Bleachery died in Peterborough, N. H.

Royal C. Taft, 68, former secretary-treasurer of the Coventry (R. I.) Co., died suddenly on March 30 at the Butler Hospital, Providence.

William Osborn Todd, 76, founder of Pocasset Worsted Co., Thornton, R. I., and for some time connected with the National Providence Worsted Mills, Providence, died in Providence April 3.

Chris Suber, retired Anderson (S. C.) textile mill executive, died March 30. Mr. Suber was retired Jan. 1 by Gossett Mills of which he had been secretary and assistant treasurer.

Thomas J. O'Neill, 80, former silk manufacturer, died at his home, Hanover, York county, Pa., recently. Mr. O'Neill learned the silk business in the early days of the Adelaide Silk Mills in Allentown. Later he went into the silk business in Hanover and in Pawtucket, R. I., retiring about 15 years ago.

Alex Horn, president of Horn Woolen Mills, Lindsay, Ont., died at his home there. Mr. Horn was known throughout the Dominion as an authority on the woolen industry.

Theodore F. Brett, 97, who was sales manager of the wholesale division of Marshall Field & Co. for 30 years before his retirement some time ago, died at Omaha.

Sidney Rainess, head of Grant Finishing Co., Paterson, N. J., and president of Salesmen's Association of the Textile Dyeing and Printing Industry, Inc., was killed in an automobile accident near Walterboro, S. C., April 4.

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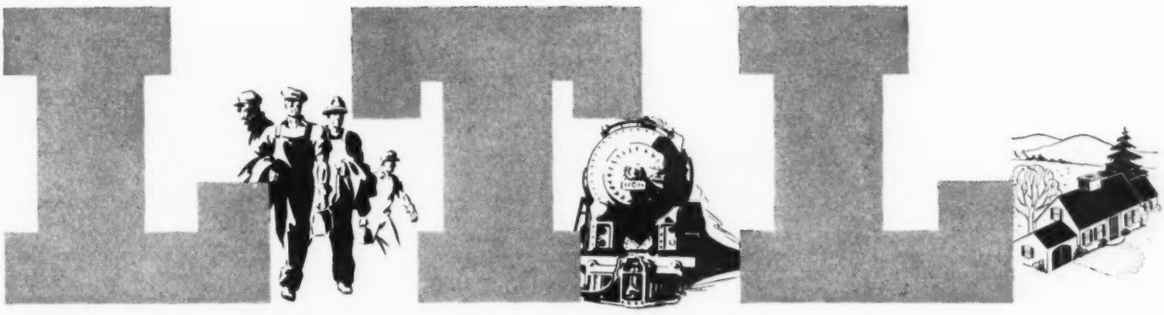

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TEXTILE MILL NEWS

Cotton Mill News

American Fiber Products Co., Inc., Portales, N. M., care of Portales Chamber of Commerce, A. H. Ribble, president, recently organized to manufacture textile fiber specialties, is arranging for acquisition of local site for proposed mill. It is estimated to cost approximately $100,000, including machinery.

Aragon (Ga.) Mills have begun one-story addition, 60x130 ft., for which contract recently was awarded to Wright & Loper, Cedartown, Ga. Cost reported over $60,000, with equipment.

Bagpipe Mills, Inc., with principal office in Laurinburg, N. C., have been chartered with authorized capital of $100,000, to manufacture and sell all kinds of cotton yarns. The incorporators include D. A. Brannon and J. E. McInnish of Rockingham; James L. McNair, Jr., of Laurinburg.

Brighton Mills, Inc., Shannon, Ga., will build a community building, one story, 153x122 ft., brick and structural steel.

California Cotton Mills Co., Selma, Ala., unit, which has discontinued operation, has sold its plant to the Lewis Cigar Mfg. Co., of Newark, N. J. The textile company operates a mill at Uniontown, Ala.

Canadian Cottons, Ltd., Cornwall, Ont., have awarded contract to Deakin & Stewart, Ltd., Montreal, Que., for four-story addition, previously reported. Cost close to $125,000.

Collins & Aikman Corp., Roxboro, N. C., plant, is rapidly converting its automobile upholstery weaving equipment to production of duck and serge for the army. It will soon have the entire 224 looms engaged in essential war work.

Duff Looms, Inc., Morganton, N. C., newly organized for manufacture of drapery and upholstery material, has gotten into operations with 20 looms. C. H. Ross is president and treasurer; J. M. Gayle, superintendent.

Frieda Mfg. Co., Kings Mountain, N. C., formerly the Crowder's Mountain Mill, is now engaged in the manufacture of 90s to 140s combed yarn in single and ply. Chas. S. Williams of Kings Mountain is president, and A. Alex Shuford, Hickory, N. C., secretary and treasurer.

Grosvenor Dale Co., North Grosvenor Dale, Conn., has been purchased by Cluett, Peabody & Co., Troy, N. Y.

Hill Mfg. Co., Lewiston, Me., is continuing an expansion and improvement program at mill, started a number of months ago, and will install about 265 new high-speed looms and auxiliary equipment, scheduled to be ready for operation during the summer. Company recently has installed new machinery in picking and carding divisions.

Lane Cotton Mills Co., New Orleans, La., has begun superstructure for one-story L-shaped addition, 160x290 ft., for which general contract recently was awarded to George J. Glover Co., Whitney Building, New Orleans. Cost reported close to $100,000, including equipment. Favrot & Reed, New Orleans, are architects.

Ludlow Mfg. Associates report net profit of $1,713,512 for 1941 compared with $1,868,856 for 1940. Sales were $21,470,736 for 1941 and $15,317,215 for 1940.

Martel Mills, Asheville, N. C., have installed 204 looms which were removed from Mercury Mill, Charlotte, N. C. The other 48 looms have been put into storage.

Monroe Mills, Monroeville, Ala., has constructed an addition to the shipping department, which releases space in the mill for production machinery.

Nashawena Mills reports net profit of $330,876 for 1941 compared with $137,509 for 1940.

National Automotive Fibers, Inc., Detroit, Mich., has work under way on installation of machinery and equipment at one of its branch mills for production of mattresses for army service, and will convert plant for this line of output on large capacity schedule.

New England Industries, Inc., the combination including Androscoggin, Bates, Edwards, Hill and York, reports combined net profit of $2,125,284 for 1941 against combined net loss of $776,983 for 1940. Total sales for 1941 were $29,199,195 compared with $18,354,044 for 1940.

Nonquitt Mills reports 1941 net profit of $246,759 against $125,826 for last year.

Palmetto (Ga.) Cotton Mills have begun erection of one-story addition, for which general contract was awarded to J. F. Pate Construction Co., Newnan, Ga., estimated to cost about $35,000, with equipment. Robert & Co., Atlanta, Ga., are architects and engineers.

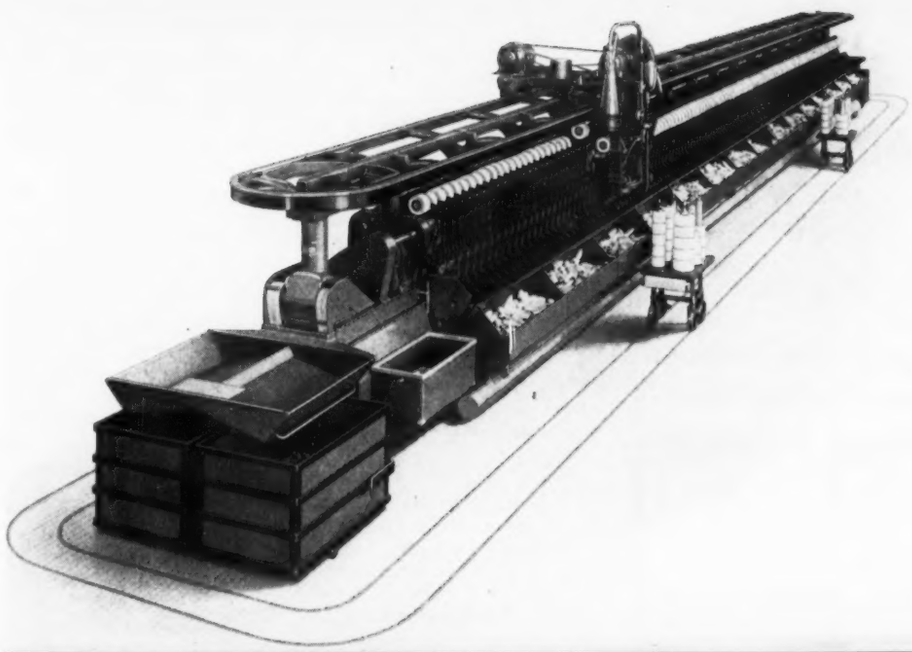
Patchogue-Plymouth Mills Corp. reports net profit of $191,201 for 1941 compared with $289,251 for 1940.

DAY AND NIGHT...

...the work goes on. This recent photograph of one part of the Barber-Colman Plant typifies that spirit which has altered our usual working and sleeping hours, to the end that productive capacity may never be idle.

FOR MORE WAR MATERIEL

..Barber-Colman Plant Works Day and Night, to Meet Increasing Needs for B-C Products in War Materiel Production



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One of the Barber-Colman Products used in war materiel plants, to speed the processing, lower the production cost, and maintain the quality of needed fabrics of many kinds. The manufacture of parts for these machines goes forward on a full time schedule.

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STANDARD OF THE WORLD

TEXTILE MILL NEWS

Pepperell Mfg. Co. has construction plans for a large laboratory which will be among the most modern in New England. It recently established a modern clinic.

Rockbestos Products Corp., New Haven, Conn., has work under way on one-story addition for storage service, for which general contract recently was let to C. W. Blakeslee & Sons, New Haven. Cost reported about $10,000, with equipment.

Scranton Lace Co. reports net profit for 1941 of $389,173, compared with $283,663 for 1940.

Soule Mills, New Bedford, Mass., is constructing a basement under the cloth and slasher room. From private plans the owner is doing the work by the day labor at a cost of $10,000.

Spaulding Fiber Co., Rochester, N. H., has leased the first floor of the Pacific Mills building No. 1 in Dover, N. H., and will remove its plant thither.

Summit Yarn Co., Lincolnton, N. C., has been chartered by Stahle Linn, May E. Hackett and J. W. Lippels, all of Salisbury.

Textiles, Inc., reports net profit of $1,261,376 for 1941, compared with $470,461 for 1940.

Wabasso Cotton Co., Three Rivers, Que., has let general contract to Deakin & Stewart, Ltd., Montreal, Que., for installation of ventilating equipment and other improvements in mill. Cost reported about $40,000.

Warrior Duck Mills, Spartanburg, S. C., is newly organized by W. P. Ligon and others to manufacture war orders for duck with 100 employees and $75,000 invested.

Waverly Braid Mills, Gastonia, N. C., newly organized, with A. J. Melvin treasurer and C. F. Orr general manager, is now operating 200 braiders in the manufacture of shoe laces and braids.

York Mfg. Co., Saco, Me., is carrying out an expansion and improvement program at mill, begun a number of months ago, and plans immediate installation of new high-speed spooling, warping and auxiliary equipment. Entire project will represent a cost of about $125,000.

Wool Mill News

Artloom Corp., Philadelphia, Pa., has work under way on converting its mills for production of materials for war service, and over 35% of its looms have now been changed over for this purpose, with further early increase to be made.

Atlas Felt Products Co., 40 Broad St., Boston, Mass., recently formed with capital of 1000 shares of stock, no par value, plans operation of a mill in vicinity of city. Louis Zimble is president.

Sidney Blumenthal & Co., Shelton, Conn., reports net earnings for 1941 of $834,086, compared with $741,714 for 1940.

Dorr Woolen Co., Guild, N. H., has begun erection of one-story addition, about 48 x 53 ft., for expansion in dyehouse, with alterations and improvements to be made in present dyehouse. Additional machinery will be installed.

Esmond-Virginia Corp., Waynesboro, Va., has organized a subsidiary under the name of American Blanket Co., to operate a branch mill at Lynchburg, Va., where one-story industrial building has been taken over for plant. Production will begin at early date on woolen blankets.

Hand Woven Fabrics, Inc. has been organized in Los Angeles county, with a capital of $25,000. Directors are: Jacob Hochbaum, Max Prussak and Sam Keller, all of Los Angeles. The new corporation is represented by Harry Sutton, 448 South Hill Street, Los Angeles, Calif.

Hayward-Schuster Woolen Mills, Manchaug, Mass., sold surplus woolen and cotton machinery by auction last month and realized about $15,000 on 50 or 60 items.

Kezar Falls (Maine) **Woolen Co.** is building a one-story addition (1700 sq.-ft.) to its dyehouse to house a new James Hunter cloth carbonizing unit with 8 dryer sections and capacity of 10 yr. of 20-oz., 66 in., goods per minute. Addition will also house drug room and teasle gig.

Los Angeles (Calif.) **Felt Co.** is the firm name under which Joseph Spiegelman and Louis Spiegelman have obtained a certificate to conduct business at 830 East Fifty-ninth Street, Los Angels, Calif.

Magee Carpet Co., Bloomsburg, Pa., is curtailing carpet production and will discontinue such line of manufacture entirely, it is stated, in about 90 days, for the duration of war. Mills will be used for production of webbing, duck, etc., for war service, with conversion of equipment for this purpose.

Pacific Mills, Worsted Division, Lawrence, Mass., has be-

FORMICA has great utility in textile machinery, because it is smooth and hard, strong mechanically, and light in weight. It will stand a great deal of wear and color will not rub off. It is non-porous, and used for a table top or the lining of a truck, all dies and colors can be readily flushed off. The edges are smooth and do not readily wear rough so that it will not sliver and snag fabrics or thread.

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ACCIDENTAL DEATH $5,000-$10,000	WEEKLY DISABILITY $25.00-$50.00	$25.00 Per Week for Confining Sickness	$10.00 Per Week for Non-confining Sickness
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T.W.-42

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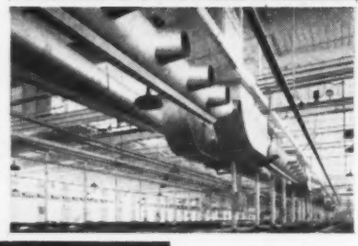
ENGINEERS—EQUIPMENT FOR THE TEXTILE INDUSTRY



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Heads set flush with machine surfaces. No sharp edges or slots to burr and pull threads; screws are chamfered at the point, outside edge of head and top edge of socket. The internally operated hex key sets the screw quickly and *tightly* without slippage. Samples supplied to your specifications.

THE ALLEN MANUFACTURING COMPANY
Hartford, Connecticut, U. S. A.

gun the manufacture of men's wear from rayon blends, as well as with cotton warp. Various equipment has been converted for this purpose.

Rohmer Medford (Mass.) **Wool Scouring Co.** has work underway for a 1-story addition 75 x 180 feet of brick mill construction. J. F. Fitzgerald Construction Co., Boston, has the general contract for the work.

Stillwater Worsted Mills report net profit of $751,615 for 1941, compared with $456,977 for 1940.

Wool Scourers, Inc., Millbury, Mass., have been organized with capital of 5000 shares of stock, no par value, to operate a scouring and carbonizing mill. It is understood that new company will take over and succeed to Windle Co., with local mill at 95 West Main St. Thomas H. Sullivan is president of new company, and Betty B. Windle, treasurer.

Rayon Mill News

American Bemberg Corp., and **North American Rayon Corp.,** both at Elizabethton, Tenn., closed their clubhouse on March 31, and will convert it into a business building for the rayon plants.

American Bemberg Corp. reports net profit for 1941 of $245,420, compared with $783,527 for 1940. The 1941 figure is affected by $734,317 of expenditures for special plant repairs.

American Viscose Corp. reports net profit for 1941 of $7,993,598, compared with $7,884,677 for 1940. Net sales of $80,549,180 for 1941, the largest in the corporation's history exceeded the $62,771,895 of the previous year by 28%.

Brighton Mills reports net profits for 1941 of $272,366, compared with a net loss of $101,815 for 1941.

Burlington Mills Corp., Greensboro, N. C., has renovated a two-story building which adjoined the office building for an addition to the office. Burlington's rayon mill at Newton, N. C., is erecting a one and two story annex.

Celanese Corp. of America, Inc., New York, N. Y., plans expansion and improvements in mills at Amcelle, near Cumberland, Md., and at Pearisburg, Va., including new production units and installation of equipment for increased capacity. Contract for laboratory addition at Amcelle has been let. Company has arranged financing through bond issue totaling about $7,522,000, actual issuance of which was postponed on March 24. Part of fund will be used for completion of new yarn mill of Staunton (Va.) Textile Co., a recently organized subsidiary, on which work is now in progress. The company plans a branch mill in Mexico to employ 1500 at start, perhaps 5000 later. Celanese Corp. of America reports net profit for 1941 of $7,105,685 compared with $6,376,896 for 1940. Sales were $62,277,142 for 1911, against $44,510,651 for 1940.

Duplan Corp., Winston-Salem, N. C., has recently established a Nylon throwing plant with 22,944 spindles at 1275 White Street.

Hartford Rayon Corp., Rocky Hill, Conn., plans expansion, comprising erection of two one-story top additions to two present mill units. Also will make improvements and replacements in certain machinery and equipment. Company reports net profit of $155,161 for 1941, against $64,951 for 1940.

Keene (N. H.) **Silk Fiber Mills, Inc.** — Fire recently damaged a portion of this mill.

Luray (Va.) **Textile Corp.** has installed new machines for the manufacture of combination yarns.

North American Rayon Corp. reports net profit for 1941 of $1,832,831 compared with $1,781,426 for 1940. During 1941 about $1,000,000 was spent on machinery and buildings.

Joseph C. O'Connell Co., Inc., Rodney French Blvd., New Bedford, Mass., has been chartered with capital of 100 shares of stock, no par value, to operate a local mill for production of fibrous yarn specialties. Joseph C. O'Connell, Jr., Seekonk, Mass., is president and treasurer.

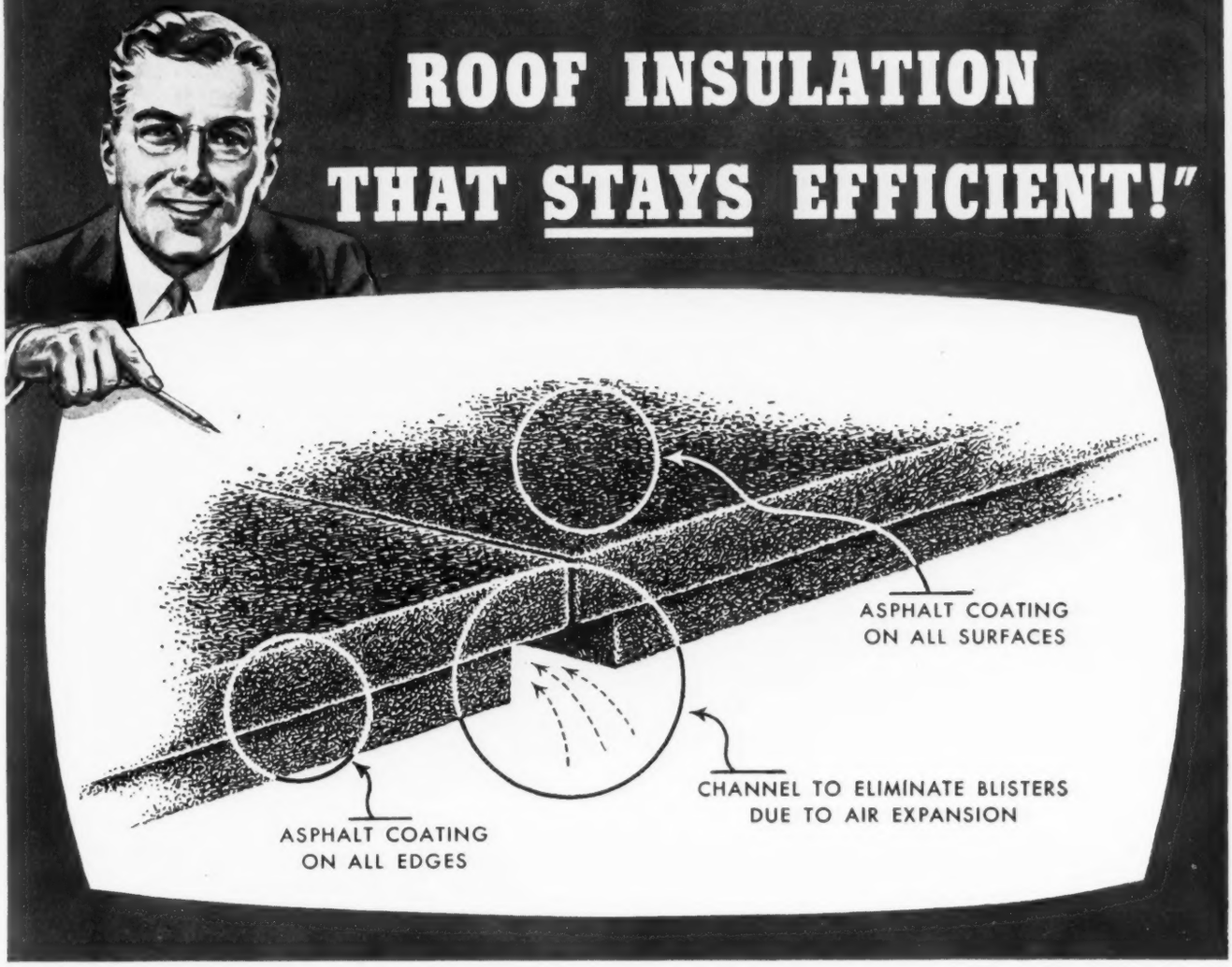
Parkersburg (W. Va.) **Silk Mill,** unit of Kahn & Feldman, Inc., closed since the Government commandeered raw silk, has been put back into operation for throwing rayon yarns.

Knitting Mill News

Adams-Millis Corp. reports net profit for 1941 of $624,231 compared with $472,250 for 1940. Sales for 1941 were $7,756,052 compared with $6,909,860 for 1940. The company spent $500,000 on new machinery and plant improvements in 1941, and had commitments of $340,000 for additional machinery.

Blackwood (N.J.) **Hosiery Mill, Inc.,** care of Walter R. Kreh, Blackwood, recently organized with capital of 200 shares of stock, no par value,

"AT LAST! AN EFFICIENT ROOF INSULATION THAT STAYS EFFICIENT!"



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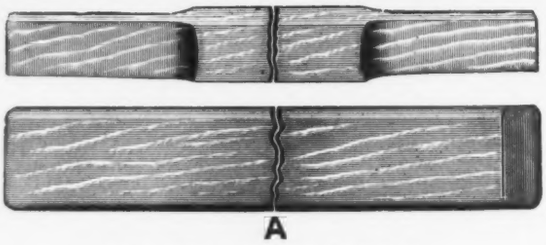
Designers and Spinners of Novelty Yarns



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COST SYSTEMS
WORK LOAD STUDIES
PAY ROLL CONTROLS
COST REDUCTION SURVEYS
SPECIAL REPORTS

H. G. LORD *comments on*

Advertising in War Time

See page 6

plans early operation of local knitting mill.

Crescent Mfg. Co. Spartanburg, S. C., manufacturer of men's and boys' hose and golf socks, has sold its equipment to Morris Speizman, machinery dealer in Charlotte, N. C. Included in the purchase were approximately 300 knitting machines and all auxiliary equipment.

Grenada (Miss.) Industries, Inc., have awarded general contract to Currie & Corley Co., Raleigh, Miss., for one-story addition, 80 x 180 ft., to hosiery mill, reported in last issue, and superstructure will proceed at once. It will be equipped for a new dyeing and finishing department, with cost estimated about $130,000 including machinery.

Judith Mills, Niota, Tenn., hosiery manufacturers, which had not operated for several months because of silk restrictions, has secured materials for women's rayon hosiery, and resumed operations.

Laurens Hosiery Mills, Inc., Roxbury, Mass., recently organized with capital of 1000 shares of stock, no par value, plans early operation of a local knitting mill. Ephraim Kaplan, 81 Walnut Park, Roxbury, is president and treasurer.

Philadelphia, Pa.—Samuel I. and Martin M. Burd, Philadelphia, have acquired a one-story industrial building at corner of Lester, Third and Wyandotte Sts., on site about 125 x 200 ft., and will establish a new mill for the manufacture of hosiery. Equipment will be installed for employment of 250 persons.

Sheer Silk Hosiery Mills, Ltd., Sherbrooke, Que., plans rebuilding of portion of mill recently destroyed by fire.

Union Knitwear Co., 17 West 31st St., New York, N. Y., has leased space in building at 46-50 West 29th St. and will occupy for plant, expanding present capacity.

Wayne Knitting Mills reports net profit for 1941 of $466,170, compared with $336,697 for 1940.

Processing Plant News

Arnold Print Works, North Adams, Mass., directors voted Mar. 30 to liquidate the 79-year old corporation because of inability to obtain supplies. Company normally employed 1,600 in its Adams and North Adams plants.

Joseph Bancroft & Sons Co. reports net profit of $1,752,599 for 1941 compared with $291,556 for 1940. Sales in 1941 were $11,693,574, compared with $7,292,923 in 1940.

Fanset Dye Works is the firm name under which Lincoln Hayes has obtained a certificate to conduct business at 2975 Glendale Boulevard, Los Angeles, Calif.

Gastonia, N. C. — Robert Goldberg, C. C. Armstrong and G. A. Cooper are the incorporators of three textile companies as follows: Gastonia Thread Corp., to engage in bleaching and finishing thread yarns of all kinds, authorized capital stock $5,000; Gastonia Processing Co., for processing cotton yarns, authorized stock, $2,500; Gastonia Mercerizing Co., to manufacture yarns, cloths and all kinds of textile fabrics, authorized capital stock, $5,000.

Buckner Process Co., Middletown, Conn., has let general contract to O. E. Larson, Newfield St., Middletown, for one-story addition, 36 x 80 ft. Cost close to $15,000, with equipment.

Landtex Fabrics Inc., 32 N. 3rd St., Philadelphia, has been incorporated to manufacture, convert, buy, sell and generally deal in rayon, cotton and cognate fabrics. Capitalized at $150,000. Incorporators: Herman Landau, Jacob Landau and Manfred Landau, all of Philadephia.

Naomi Screen Printing, Inc., 622 Broadway, New York, N. Y., has leased a floor in building at 42-24 Orchard St., Long Island City, and will occupy for a new textile print works.

Royal Dyeing & Printing Co., Fall River, Mass, has sold to Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., its mill property in Sunbury, Pa., as the Sunbury Converting Works, including buildings with a floor area of 350,000 sq. ft.

Trio Dye Works, Paterson, N. J., disposed of its equipment on March 5 by auction conducted by Dave Perlman.

Vulcan Proofing Co., First Ave. and 58th St., Brooklyn, N. Y., manufacturer of processed rubberized fabrics, plans expansion and improvements in two-story mill. Cost reported over $125,000, with equipment. William Higginson & Son, 101 Park Ave., New York, N. Y., are architects.

Weissport Dye Works, Inc., Railroad and Bridge St., Weissport, Pa., has been incorporated "to deal in hosiery and knit and woven goods of every description." Incorporators: Raymond F. Smith and Laura M. Diehl, both of Palmerton, Pa., and Chas. F. Bretner, of Lehighton, Pa.

HERE'S ALL YOU NEED TO END WINDOW SASH PROBLEMS

Right now!
PC GLASS BLOCKS
— available for immediate shipment
ORDINARY MORTAR
— a regular mason can easily install glass blocks

IF you are faced with the need for replacing worn-out sash, either to repair your present plant or to rehabilitate an old one, you can take care of the problem in quick order with PC Glass Blocks. For glass block construction requires no use of critical materials in small panels—very little metal is required even in large panels. Many plant owners have set up a program of progressively replacing ordinary window sash with PC Glass Blocks. This change can be made a panel at a time, a floor at a time, or department by department.

In addition to permitting immediate construction, PC Glass Blocks provide many other advantages that result in greater plant efficiency and lower maintenance costs. We can barely mention here the many ways they can help you. But it is information you should have on hand whether you plan to build, remodel or add to your plant. Our book on PC Glass Block construction will show you how other plant owners have used glass blocks successfully. Mail the coupon below for your copy.

PC Glass Blocks give you all these advantages:

BETTER DAYLIGHTING · INSULATION
IMPROVED TEMPERATURE CONTROL
IMPROVED HUMIDITY CONTROL
LESS CONDENSATION ON WINDOW AREAS
EASIER CLEANING
ELIMINATION OF DIRT INFILTRATION
REDUCED MAINTENANCE COSTS · PRIVACY

"PITTSBURGH" stands for Quality Glass

PITTSBURGH PC CORNING

GLASS BLOCKS

Distributed by

PITTSBURGH PLATE GLASS COMPANY

and by W. P. Fuller & Co. on the Pacific Coast

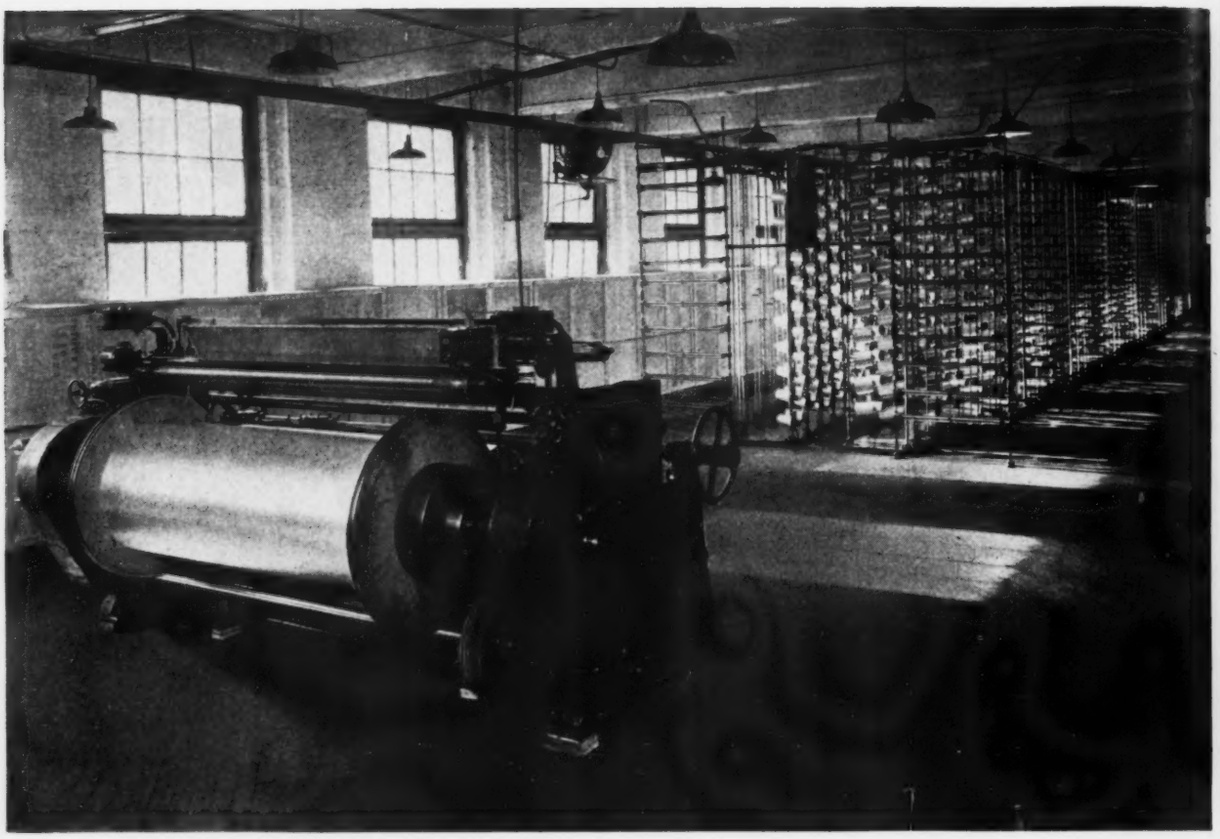
Pittsburgh Corning Corporation
2069-2 Grant Building, Pittsburgh, Pa.

Please send me your free, illustrated book that tells how PC Glass Blocks have been used successfully in many industrial plants.

Name.....

Address.....

City..... State.....



High-Speed Spindle Driven Warper with Magazine Cone Creel and Electrical Eyeboard stop motion for Rayon.

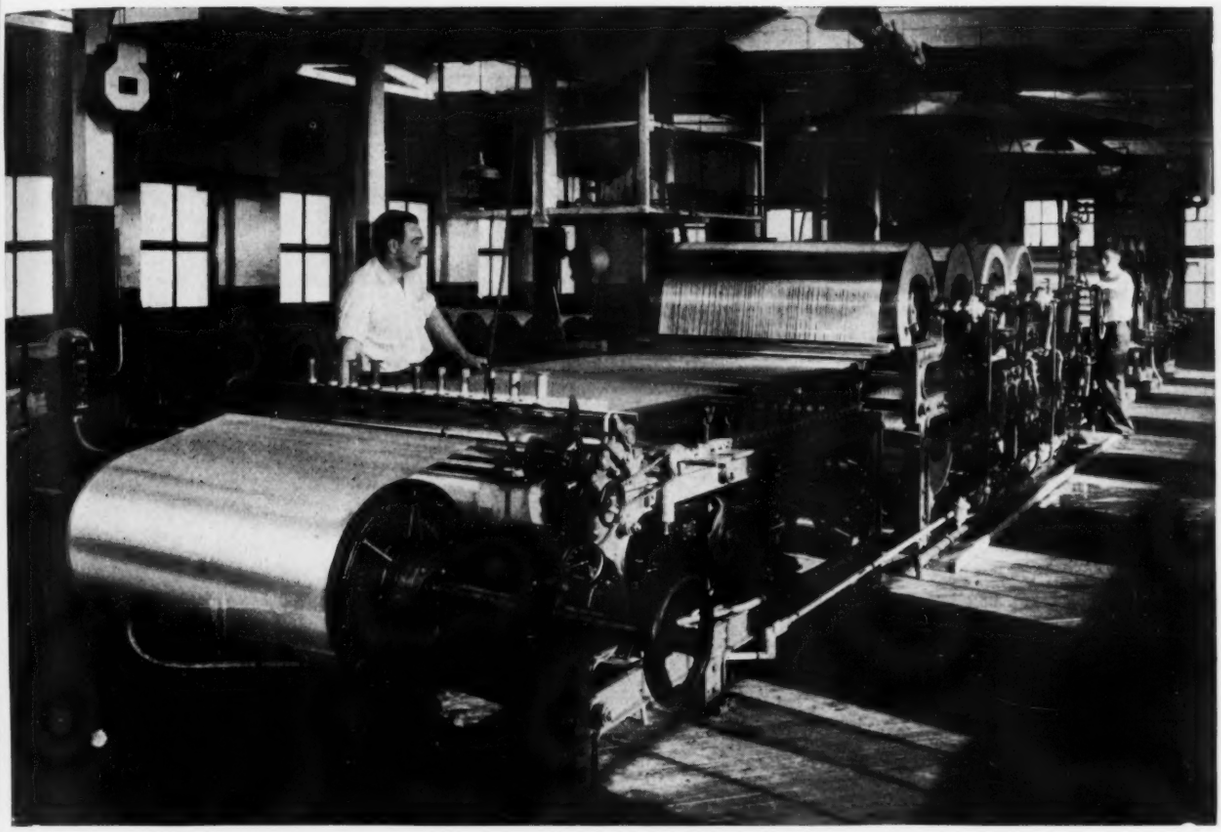
PUT THESE *Modern* MACHINES

Repeat orders for complete installations of COCKER HIGH-SPEED WARPERS and Creels, and COCKER HIGH-SPEED SLASHERS illustrated above, prove that better warps are made efficiently and economically on COCKER WARP PREPARATION EQUIPMENT.

Investigate the many desirable Cocker Features not found on other Warp Preparation Equipment.

COCKER MACHINE and

Builders of Complete Warp Preparation Equipment for



Cocker Seven Cylinder High-Speed Rayon Slasher.

TO WORK IN *Your* MILL

You Get All These Features on

COCKER WARP PREPARATION EQUIPMENT

—On the High-Speed Warpers and Creels

Yarn Tension secured by dead weight . . . Chrome-plated washers . . . quick acting positive electrical eyeboard stop-motion . . . magnetic brake . . . creel arrangement to permit operator to tie in reserve cones quickly and easily . . . horizontal type magazine . . . completely enclosed drive.

—On the High-Speed Rayon Slasher

Stainless steel cylinders with rotary packless joints . . . Graduated drive permitting speed changes without overrun on beams or strain on yarn . . . Patented automatic friction control . . . Finger-tip tension control . . . Syphon condensate removal with individual traps on each cylinder . . . Instant speed changes to 90 yards per minute . . . Ball bearings on all moving parts . . . Heavy vibration-eliminating frames . . . Counter clocks for instant stretch calculation . . . Cut markers . . . Cut Marker Indicators . . . Speed Tachometers . . . Combs and comb adjustments . . . Motor and steam fittings . . . plus many other important features.

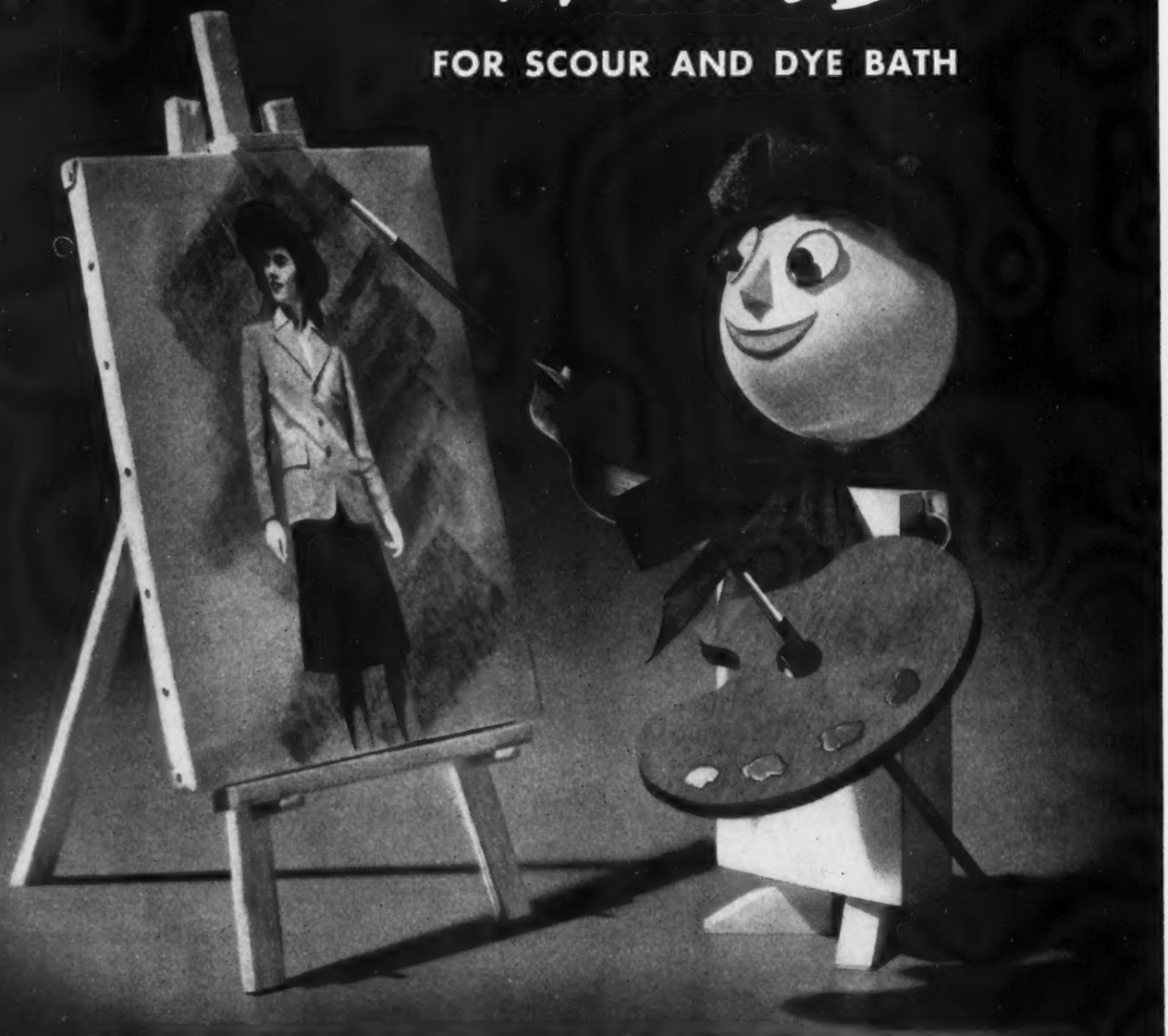
FOUNDRY CO., Gastonia, N. C.

Rayon, Cotton and Other Natural and Synthetic Yarns

A SUPERIOR SPUN RAYON JOB

WHEN YOU USE *Modinal**D

FOR SCOUR AND DYE BATH



SPUN RAYONS are adding daily to their diversified uses. Many new weaves, particularly suitings and heavy cloths, require the most exacting finishing standards.

"Modinal" D extra-strength detergent is now used to advantage in many mills in both scouring and dyeing.

Spun rayons are left with a softer, loftier, more wool-like hand. Dye penetration is improved—results are more uniform. And no fatty odor mars the finished appeal.

Have one of our technical men call at your plant to discuss where and how "Modinal" D improves finishing operations and results.

. . .

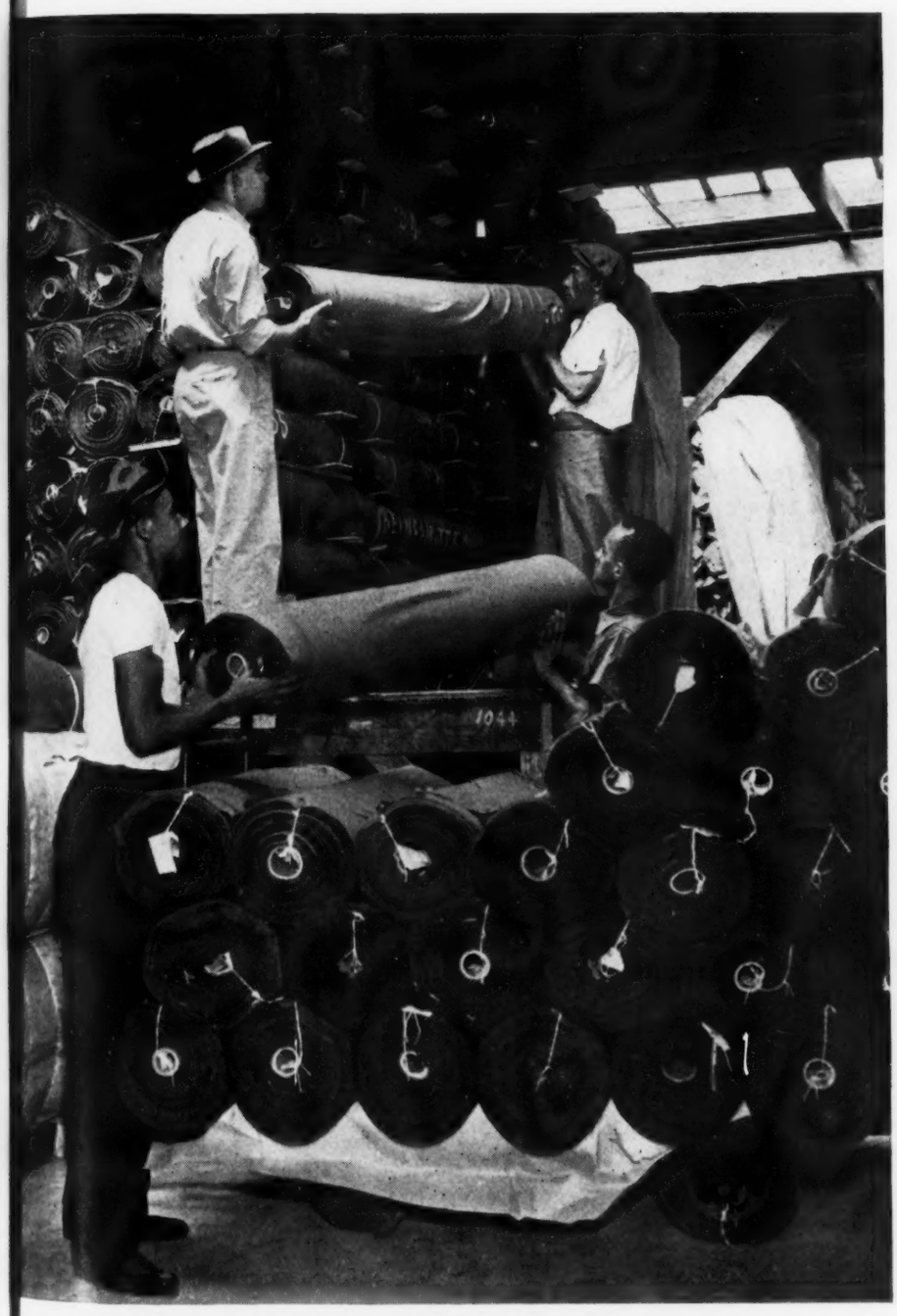
*"**MODINAL**" *is the trade-mark used by the Gardinol Corporation to designate a group of its fatty alcohol sulphates.*

GARDINOL CORPORATION, GENERAL OFFICES, WILMINGTON, DEL.

SALES AGENTS: Procter & Gamble, Cincinnati, Ohio · E. I. du Pont de Nemours & Co. (Inc.), Wilmington, Delaware

ENDURO *will help you*

TO SPEED YOUR BIGGEST JOB



It's a big job—the biggest in the history of the textile industry. It's the production of millions of yards of textiles of every description to clothe and equip our greatest army. And it includes, too, the production of textiles for essential civilian needs.

During the past years, Republic ENDURO* Stainless Steel has proved to textile manufacturers that it can be an important aid in speeding up production in processing, spinning and weaving.

ENDURO dyeing and processing equipment is easy to clean and keep clean. Seldom is more than a simple flushing with water and wiping necessary between batches. Colors are true—because ENDURO is inert to the action of chemicals used in the industry—because its dense, non-porous surface retains no processing fluid which might contaminate the next batch.

Republic ENDURO can help speed *Production for Victory* in another way, too. It does not rust or corrode—lasts indefinitely—requires a minimum of maintenance—almost never is responsible for production-delaying shut-downs for repairs.

The high strength and toughness of ENDURO mean years added to service life. Its hard, smooth surface protects textile materials against damage.

If you have ENDURO equipment, protect it against damage which might impair its inestimable value to you today—and tomorrow. If you don't have equipment of this production-increasing, cost-reducing material, there's no better time than right now to write for descriptive literature and the names of ENDURO fabricators.

REPUBLIC STEEL CORPORATION
Alloy Steel Division: Massillon, Ohio
General Offices: Cleveland, Ohio

Berger Manufacturing Division
Culvert Division
Niles Steel Products Division
Steel and Tubes Division
Union Drawn Steel Division
Truscon Steel Company

*Reg. U. S. Pat. Off.

REPUBLIC STEEL
PRODUCTION FOR VICTORY

REPUBLIC

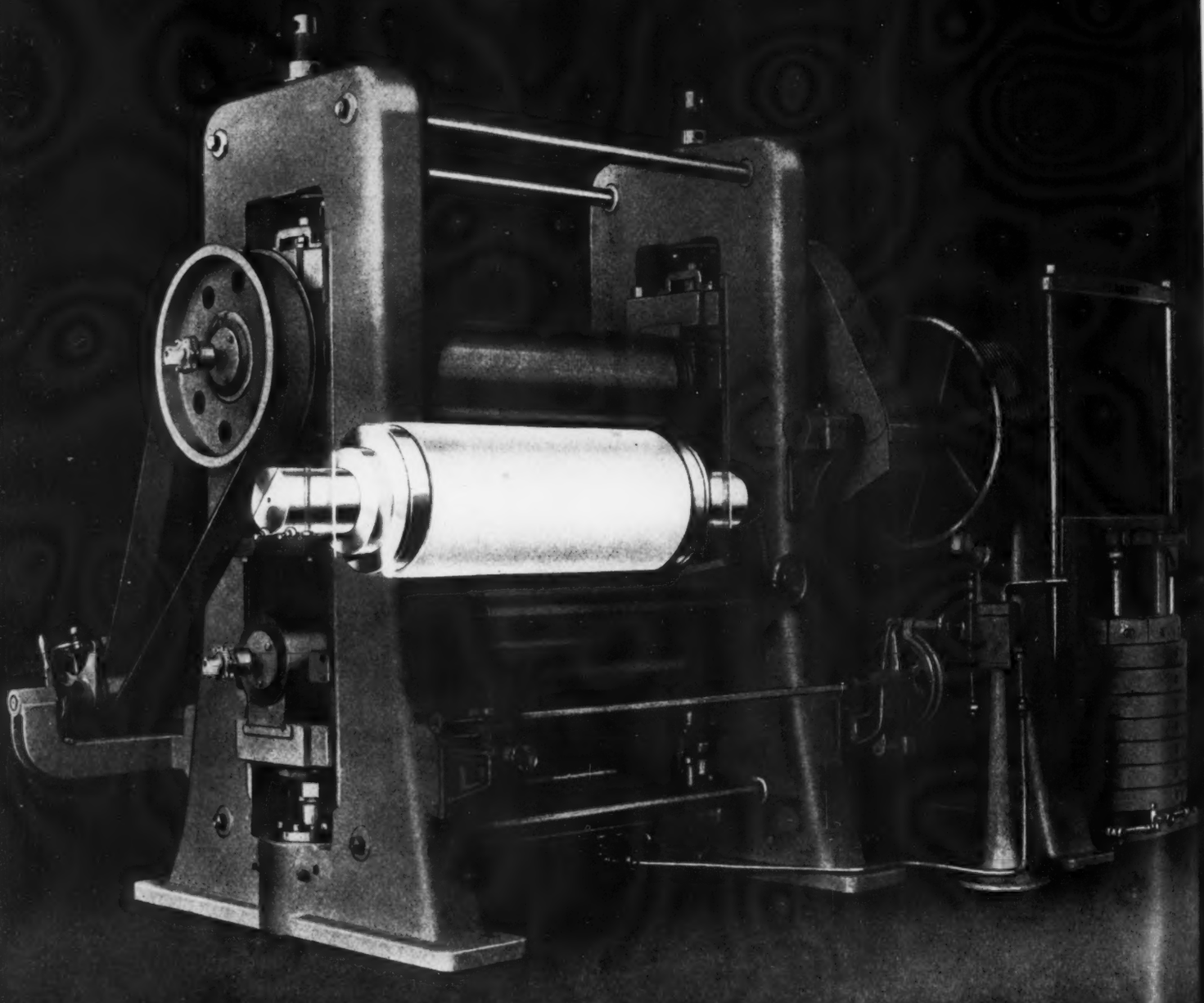
Enduro STAINLESS STEEL

Reg. U. S. Pat. Off.

Other products for the Textile Industry include Toncan* Iron Pipe and Sheets — Upson Quality Bolts, Nuts and Rivets — Berger Lockers and Shelving.

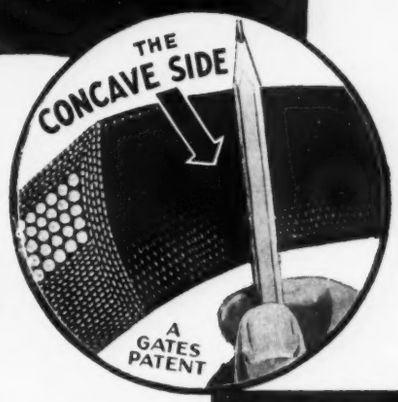
PERKINS ROLLS

IMPROVE THE PERFORMANCE
OF ANY CALENDER



B. F. PERKINS & SON, Inc.

HOLYOKE • MASS.



Make This Simple Test

It Will Show You A REAL SAVING *in Belt Costs!*

As a V-belt bends, you can actually feel its sides change shape! The top of the belt is under tension and grows narrower (see Figure 1, at right). The bottom is under pressure—therefore it widens. These stresses force a straight-sided V-belt to bulge in the sheave groove (Fig. 1), and this produces uneven wear on the belt sides, resulting in shorter life!

Now look at Figure 2. There you see how the concave side of the Gates Vulco Rope exactly corrects this bulging. It insures a perfect fit in the sheave groove with uniform side-wall wear and, therefore, longer life! It insures that the entire side-wall grips the pulley—heavier loads are carried without slippage—belts are saved and power consumption reduced.

Only belts built by Gates are built with the Concave side, which is a Gates patent.

What Happens When a V-Belt Bends

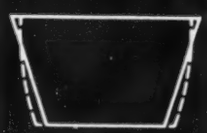


FIG. 1

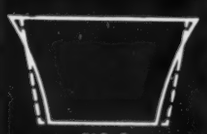


FIG. 2

THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

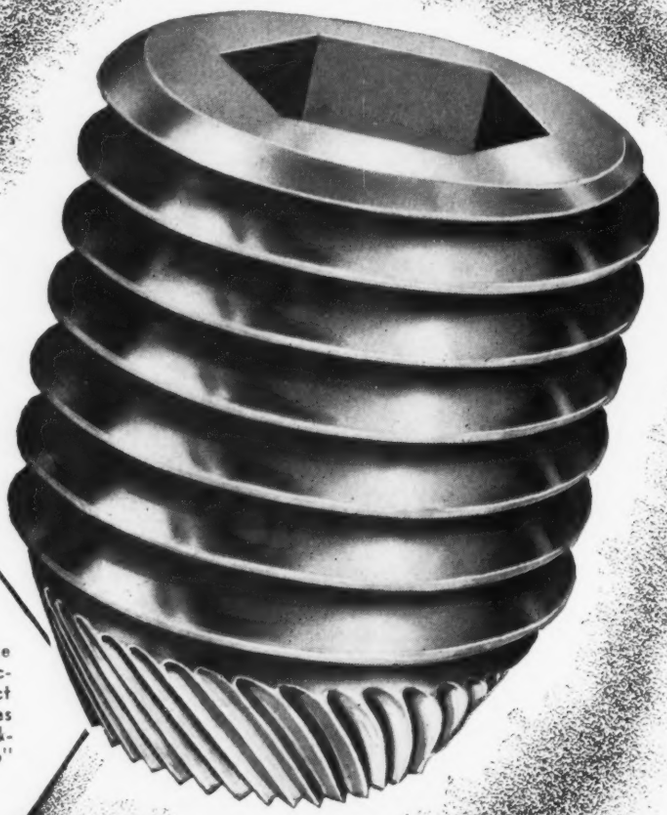
Chicago, Ill. 549 West Washington
New York City 215-219 Fourth Avenue
Birmingham, Ala. 405 Liberty National Life Bldg.
Los Angeles, Cal. 2240 East Washington Blvd.
Denver, Colo. 999 South Broadway
Dallas, Tex. 2213 Griffin Street
Portland, Ore. 333 N. W. 5th Avenue
San Francisco, Cal. 2700 16th Street

LOCKS AUTOMATICALLY

WHEN TIGHTENED

UNBRAKO

SELF-LOCKING HOLLOW SET SCREWS
with the Knurled Points



A NORMAL pull will tighten the Knurled "Unbrako" so it automatically locks in place . . . a distinct advantage of great importance as there was never a sure way of locking a set screw before "Unbrako" Self-Lockers.

THE Knurling of the point is so cleverly done as to offer no resistance when "Unbrako" is tightened up. As soon as vibration tries to back it off, the Knurls immediately dig in and prevent loosenings. It can't vibrate loose by itself. Further, it can be used again and again, and locks equally well regardless of how often adjusted.

You can eliminate many maintenance costs and breakdowns with "Unbrako" Self-Lockers. Write today for details.

KNURLING of Socket Screws originated with "UNBRAKO" years ago.

STANDARD PRESSED STEEL CO.
JENKINTOWN, PENNA. BOX 571
— BRANCHES —
BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

Reg. U.S. Pat. Office

UNBRAKO *Screw Products*

Monel's in the Army, too ...

Used for purifying drinking water, it fights off rust, corrosion and hard wear

A lot of Monel that might have gone into textile equipment has gone into the Army. These pictures show some of it, as used for water purifying units.

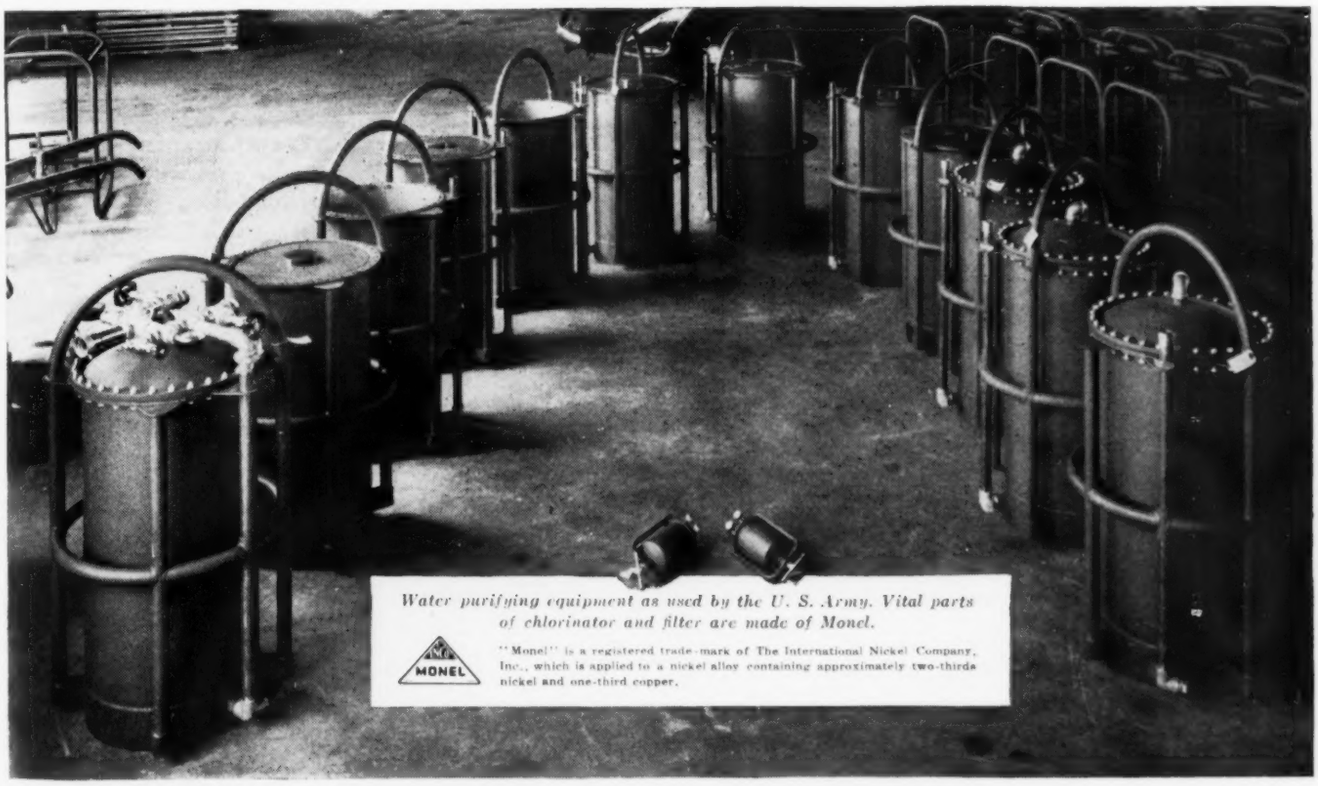
Monel is employed for the filter part of the system and for vital parts of the chlorinator, because it protects purity of the water, resists corrosion by the chemicals employed and is able to withstand hard service and abuse.

The same useful properties that made Monel the outstanding metal for textile equipment account for its importance now in our all-out effort for victory.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York, N. Y.

★ FIRST THINGS FIRST ★

With the Nation at war, supplies of Monel, Nickel and Nickel Alloys are needed for our armed forces. All efforts must now be aimed toward victory. In the meantime The International Nickel Company will continue to issue information which it is believed will be of interest to metal users who are concerned with the war needs of today and the peace-time progress of the future.



Water purifying equipment as used by the U. S. Army. Vital parts of chlorinator and filter are made of Monel.

"Monel" is a registered trade-mark of The International Nickel Company, Inc., which is applied to a nickel alloy containing approximately two-thirds nickel and one-third copper.

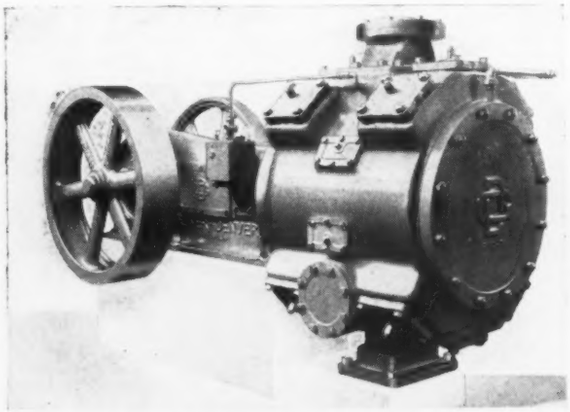
★ ★ ★ ★ **INCO NICKEL ALLOYS** ★ ★ ★ ★

MONEL • "K" MONEL • "S" MONEL • "R" MONEL • "KR" MONEL • INCONEL • NICKEL • "Z" NICKEL

Sheet . . . Strip . . . Rod . . . Tubing . . . Wire . . . Castings

UP-TO-DATE FACTS . . . FOR THE TEXTILE MILL MANAGER!

TODAY, textile management confronts these significant facts. First, mill equipment must be capable of operating at top speed for longer hours. Second—and mighty important—maintenance and operating costs must be low. Third, there must be no unnecessary production delays due to failure of vital machines.



For lint cleaning, cotton carding, and other textile jobs. Gardner-Denver Type "RXV" vacuum pumps have extremely low horsepower requirements, due to extra large valve areas.

Designed and built for just such production problems, Gardner-Denver "RX" Single-Stage Horizontal Compressors are capable of delivering the necessary extra measure of performance. Horsepower requirements are unusually low, and maintenance costs are kept at a minimum.

Here are a few of the "RX" features, on which this better performance is based:

1. Increased efficiency due to large and unrestricted valve and port areas and extra large water jackets.
2. Long service assured by rugged, dirt-free construction.
3. Air output automatically regulated to fit air needs by Duomatic Control. With this control, if the air requirements are above 50% of the compressor capacity, the compressor will run at constant speed with suction valve unloading. If the air demand falls below 50%, the control will automatically switch over to start and stop; thus the compressor will always operate in the most efficient manner regardless of the load and without requiring the attention of an operator.
4. Drive guards may be furnished to comply with all industrial safety requirements.

Send today for complete specifications on Gardner-Denver "RX" compressors and "RXV" vacuum pumps. Write Gardner-Denver Company, Quincy, Ill.; Atlanta, Ga.; Birmingham, Ala.; Boston, Mass.; Hazleton, Penn.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Penn.; Pittsburgh, Penn.

GARDNER-DENVER PRODUCTS HELP SPEED VICTORY

GARDNER-DENVER *Since 1859*

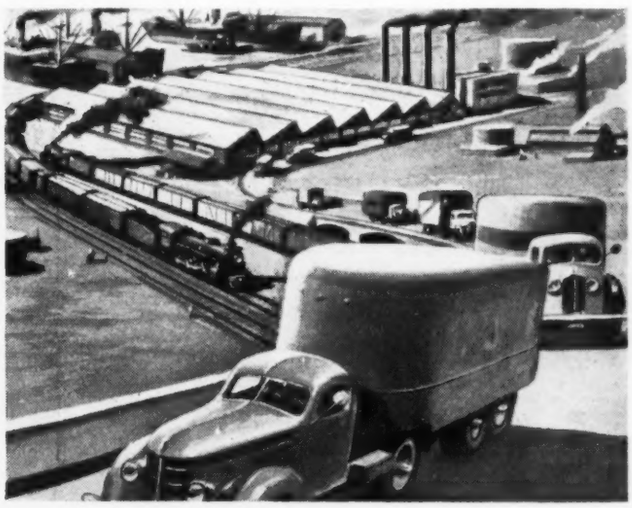
1. WITH DEFENSE INDUSTRIES ON THE OFFENSIVE, plant equipment shoulders the responsibility to take punishment and keep going. Lead lined tanks, for example, must not only fight off the corrosive attack of industrial acids but also come out on top of their *mechanical* enemies—the stresses that cause buckling, creeping, cracking and failure. In such tough spots, Tellurium Lead has shown important advantages . . .

2. IT STRENGTHENS UNDER STRESS. Yes, Tellurium Lead actually "work-hardens." Sure it's tough to start with. But hammer it . . . roll it . . . bend it . . . stretch it . . . and it gets *tougher!* That means extra resistance to cracking at turnover points and joints, to vibration, to fracture from repeated temperature changes, and to buckling and creeping . . .

Industrial Tanks have to Win Battles, Too!

3. BUT THAT'S NOT ALL. Tellurium Lead has extra "acid-fight," too . . . keeps sulphuric and other sharp-clawed acids under control. A high temperature lead, it resists their corrosive attack even at temperatures approaching its melting point. Result: In many installations, it has meant longer life and fewer shutdowns for tanks, coils and pipe lines . . .

4. NO WONDER MUNITIONS FACTORIES, metal plants, oil refineries and textile mills rely on Tellurium Lead equipment to help prevent "time-out" in vital acid processes. This new alloy combines the well-known properties of St. Joe chemical lead with the new advantages gained from Tellurium. Fabricated in sheets, pipes and coils, it is helping industry go over the top in the war production drive.



NATIONAL LEAD COMPANY—New York, Baltimore, Buffalo, Chicago, Cleveland, Cincinnati, St. Louis; National-Boston Lead Co., Boston; John T. Lewis & Bros. Co., Philadelphia; National Lead & Oil Co. of Penna., Pittsburgh; Georgia Lead Works, Atlanta; American Lead Corp., Indianapolis; Master Metals, Inc., Cleveland; The Canada Metal Co., Ltd., Toronto, Montreal, Winnipeg, Vancouver.

TELLURIUM LEAD

• A NATIONAL LEAD COMPANY PRODUCT •

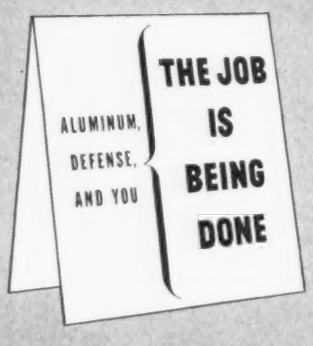
FORGET YOUR OLD ASSUMPTIONS

IMAGINEERING

IMAGINEERING

IMAGINEERING

IMAGINEERING



IN THESE DAYS an advertisement is no place either for hosannas or sermons about production. Every man knows how well he is doing the job that is before him. Deeds, not words, are the measure.

BUT WORDS CAN BECKON beyond the realms of immediate duty.

IMAGINEERING is such a word. We coined it to make the needs of the future a reality, here and now. It is a way of describing what a man can do about the day when. . .

HOW DO YOU DO IT? You let your imagination soar and then engineer it down to earth. You think about the things you used to make, and decide that if you don't find out some way to make them immeasurably better you may never be asked by your customers to make them again.

YOU FORGET YOUR OLD ASSUMPTIONS. For instance, you may be one who used to assume that aluminum was too expensive. Even if you were right then (and you may not have been) the price trend of aluminum knocks those assumptions into a cocked hat.

WERE YOU ONE who used to assume that structures behaved exactly the way the theory said? Have you looked into the new answers the mammoth testing machine in the Aluminum Research Laboratory has found for that one?

DID YOUR OLD PRODUCT GROW like Topsy? More than one designer is Imagineering with this point of view: My product was in a groove. I couldn't get it out, because I didn't dare get too far away from last year's model. Now's my chance to start from scratch, and let tradition be hanged.

THAT IS THE KIND OF THINKING that will make jobs in the future. It is the kind we can help with: help with ideas and with know-how. Will you invite us?

Aluminum Company of America, 1942 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA ALUMINUM

LUNKENHEIMER VALVES

Are Helping to Build Tanks

ESTABLISHED 1862
THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U. S. A.
NEW YORK CHICAGO
BOSTON PHILADELPHIA
EXPORT DEPT. 318-322 HUDSON ST. NEW YORK

Your Lunkenheimer distributor has a supply. Ask for your copy.

Don't OVERLOAD YOUR HOIST

Although **WRIGHT HOIST** are built with load-carrying factors much in excess of their rated capacities, like many other well-made pieces of mechanical equipment built for specific duty, they should not be overloaded. Overloading is dangerous—to men, materials, machinery and steady production. Abuse to machinery, today, is akin to sabotage.

WATCH THE BOTTOM HOOK

• Wright load hooks are drop-forged from special steel which, when subjected to excessive overloading, gives visible warning by opening slowly. When the bottom hook has started to open, look to the top hook, too, for while it is stronger than the bottom hook, it also may be reaching a danger point.

WATCH THE LOAD CHAIN

• **WRIGHT HOIST** load chains are electrically welded from special analysis steel, exceptionally high in tensile strength and elastic limit. Chains that are excessively overloaded will stretch out of pitch, thus preventing proper fit with precision load wheel pockets. This results in destructive wear to both chain and load wheel. Keep your chains well-lubricated for long life.

Victory demands all out efficiency in production. Victory demands speed. Victory demands steel. Abuse of machinery wastes all three. Take proper care of your **WRIGHT HOIST** so that it lasts. You can find the name of your nearest Wright distributor in the telephone book.

WRIGHT MANUFACTURING DIVISION
YORK • PENNSYLVANIA

In Business for Your Safety

AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT • CONNECTICUT

Quick help from experienced helpers

● Lewellen engineers want to tackle your speed-control problems! Believe us, over a period of 44 years they have solved many difficult ones. Actually the solutions to some of these problems were epoch-making inventions.

Chances are, however, that stock sizes in Lewellen Variable Speed Transmissions or Variable Speed Motor Pulleys will meet your need and, with a priority application, we can help you quickly.

Surely you have a need if fixed-speed machines at work in your plant can be made to give faster, more uniform production by the addition of Lewellen Speed Control. Please don't wait . . . call us in for our recommendations today!

Lewellen Variable Speed Transmissions are made in open and enclosed types—vertical or horizontal—in all sizes from fractional h.p. to 40 h.p. Lewellen Variable Speed Motor Pulleys are available for all ratings from fractional to 7½ h.p. Speed range, 3 to 1 for all pulley sizes. (One size has a speed range of 2¾ to 1.)

Call a Lewellen Representative or write us direct

LEWELLEN MANUFACTURING CO.
COLUMBUS, INDIANA

ELECTRIC AIR CLEANING

PREVENTS DIRT DAMAGE

IN TEXTILE MILLS

Here's a cutaway view of a typical air duct showing a bank of Precipitron dirt collector cells as the cleaning component of an air conditioning system. Precipitron is also used alone as an air cleaner.

With PRECIPITRON* we've reduced the threat of soilage caused by air-borne soot and smoke in many textile mills. This new Westinghouse electric air cleaner, installed in forced air systems, traps dirt before it has a chance to damage thread and yarn during processing.

The principle of Precipitron is entirely different from that of an ordinary air filter. Particles in the air stream are given an electric charge and then drawn off to oppositely charged plates. There are no moving parts, and, since there are no filters to become clogged, resistance to air flow is negligible. Precipitron has been tested for fire and personal hazards and is listed by the Underwriters' Laboratories.

The ability of Precipitron to provide total air cleaning (90%) has solved many air pollution problems where partial air cleaning (25%) by mechanical filters failed. And Precipitron removes harmful dirt particles as small as 1/250,000 of an inch in diameter. Because of this unmatched efficiency, electric air cleaning banishes soot, smoke, dirt and dust during winding, spinning and drying operations.

Our engineers, who have installed Precipitron in many important mills, will be glad to give you further data on its present-day industrial applications. Just write Westinghouse Electric & Manufacturing Company, Edgewater Park, Cleveland, Ohio.

*Trade-mark registered in U.S.A.

Westinghouse

Precipitron

DAY

NIGHT

Light-proof ROOF VENTILATOR READY FOR BLACKOUT

1 Low height—streamlined appearance.

2 Guaranteed performance independent of wind and gravity.

3 Hinged top gives easy access to motor fan and shutter.

1 No light shows through. Ready for blackout without special treatment.

2 Non-overloading power characteristic assures trouble-free operation.

3 Harmonizes with modern plant design.

DeBothezat

FREE Detailed information on Light-proof Roof Ventilators. *WRITE TODAY.*

VENTILATING EQUIPMENT DIVISION ★ American Machine and Metals, Inc., East Moline, Illinois

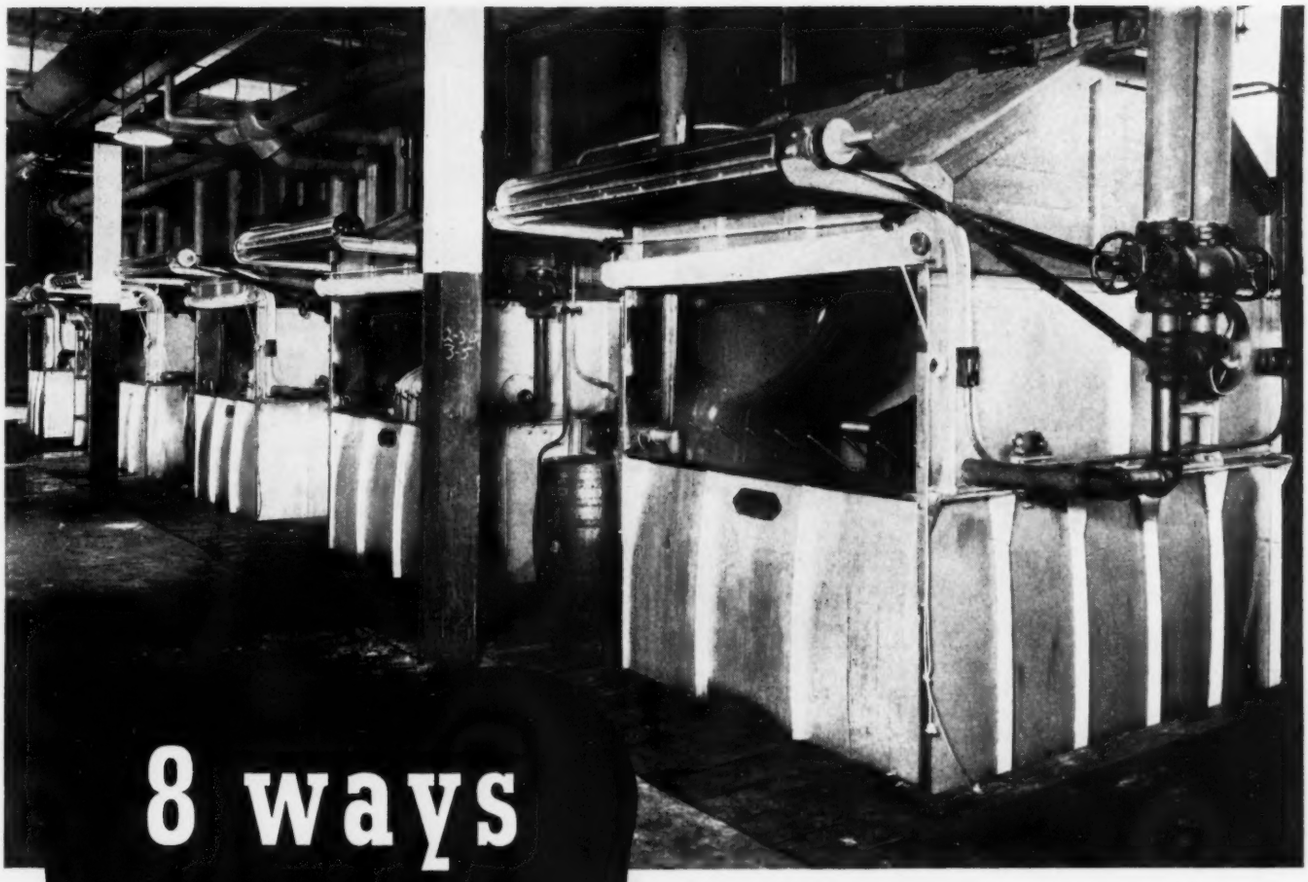
916 The Royal Bank Building,
Montreal, P. Q.

TEXTILE DEVELOPMENT and CONSULTING CO. OF CANADA LTD.

Textile Consulting Engineers

Installation of COTTON SPINNING MACHINERY adapted for production of regular worsted yarns from long staple fibre like rayon or wool or blends of fibre material with 3-8" STAPLE LENGTHS.

Also change-over of existing cotton spinning machinery for the same purpose.



8 ways TO GET THE MOST OUT OF STAINLESS EQUIPMENT

Installed several years ago these machines are giving their owners top production and low-cost service during the emergency. The machines are made of ARMCO Stainless Steel.

Constant production and long, trouble-free service life for your present equipment are doubly important now that America must outstrip the world in the manufacture of war materials.

Here are 8 rules of good practice that will help assure long service life for textile equipment made of ARMCO Stainless Steels.

1. All machines should be drained and cleaned at least once a week.

2. Expose all stainless steel equipment to air after cleaning. If this is not possible the use of alkaline or oxidizing cleaning solutions will be helpful.

3. If lint or solid particles still cling after washing, the unit should be thoroughly scoured with one of the popular brands of household cleaners.

4. Ordinary steel wool *should never be used.*

5. Should discoloration appear on the surface of stainless steel it can promptly be removed by a mild scouring compound.

6. Do not hold solutions of reducing acids in equipment longer than six or seven hours.

7. Where conditions are severe use equipment constructed with polished stainless surfaces.

8. If soldering is necessary use silver solder or a solder with high tin content.

Write for a copy of the ARMCO folder, "The Advantages and Care of Stainless Steel Equipment." The American Rolling Mill Co., 1321 Curtis St., Middletown, Ohio.

ARMCO ARMCO **STAINLESS STEELS**

CASE STUDY SHOWS

TOLHURST *Suprex* EXTRACTS

28% MORE MOISTURE

IN 5-MINUTE RUNNING PERIOD

HERE'S PROOF! A 48" "Suprex" Extractor operating at 1000 R.P.M. on cotton underwear tubing, reduced moisture content in the tubing to **65%** in **5** minutes.

A standard 48" extractor operating at 700 R.P.M. on identical material was able to reduce the moisture content only to **90%** in **5** minutes.

Even after **30** minutes operation, the standard extractor could not reduce moisture content below **82%**.

TESTS like this, on textiles with various characteristics as to fibre, stage of conversion and weave, have proved that TOLHURST Suprex is the fastest extractor of its type on the market. These time savings are achieved by the higher speeds possible with TOLHURST Suprex. Let us prove these claims on your materials. FREE Bulletin containing complete details on request.

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Division of American Machine and Metals, Inc.

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was the Beginning of Fine American Woolens & Worsteds

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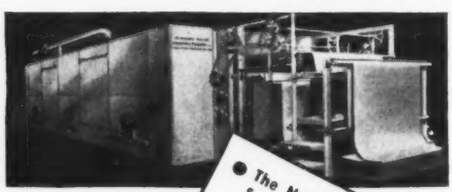
Benjamin Booth Company

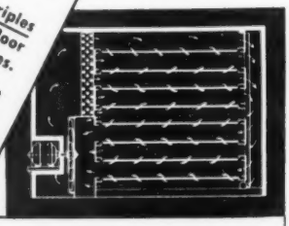
PHILADELPHIA, PA.

PROCTOR

"Hurricane" Multiple Run TENTER DRYER



- The New Proctor "Hurricane" High Speed Tenter Dryer offers ideal tentering for woolen and worsted cloth, pile fabrics, felt, blanket cloth and other fabrics which must be held to width during the drying operation.
- Selective air circulation permits air to be blown through or over goods, depending upon the kind of cloth being dried.
- This remarkable unit doubles or triples capacity in the same or less floor space occupied by other machines.
- Saves time, labor, heat, floor space over other machines having insulated housings and fans for air circulation.
- Pays for itself in one to two years' time through its all-around economies.



PROCTOR & SCHWARTZ · INC · PHILADELPHIA

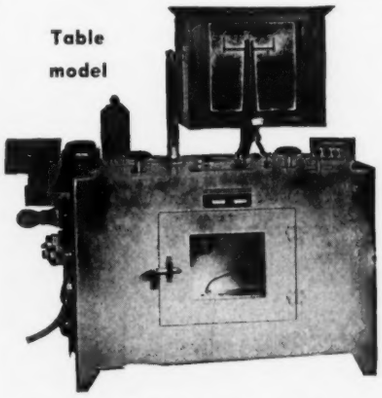
ATTENTION, KNITTERS!

IF YOU DON'T TEST YOUR YARN FOR MOISTURE CONTENT, YOU MAY BE PAYING YARN PRICES FOR WATER

SAVE MONEY

By Using an Emerson Conditioning Oven, the Watch Dog of Your Purchases

Table model



For different branches of the industry—wool, cotton, silk, rayon—we make different types of oven, equipped with baskets to fit the work, whether bulky or small samples.

EIGHT-BASKET OVEN. Can be equipped either with eight baskets 3" x 3" square and 6" deep or with six baskets 4¼" x 4¼" square and 6" deep. Sets on table.

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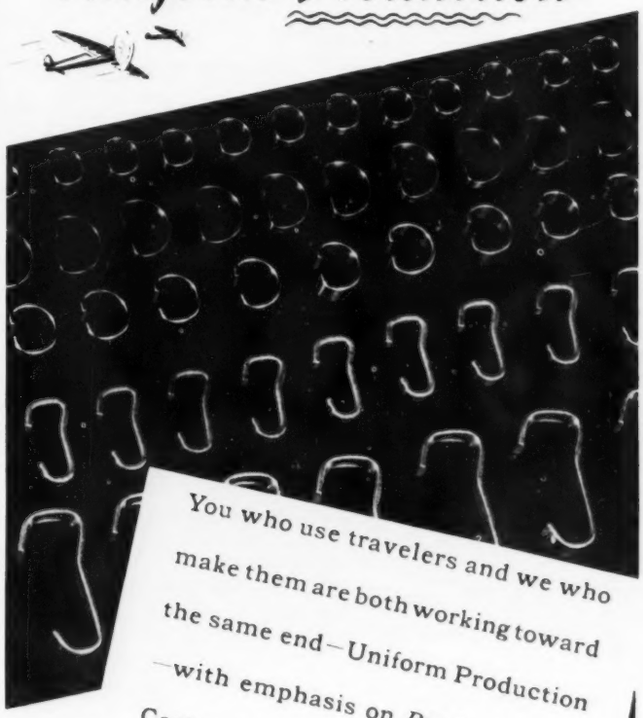
Founded in 1880

Working to the same end—

Uniform Production



You who use travelers and we who make them are both working toward the same end—Uniform Production—with emphasis on *Production.* Carter is keenly aware of the problems of their customers these days in general and regarding *travelers* in particular. . . That is why *every* traveler we make is a precision job in itself. A *traveler* made the Carter way, can be produced just so fast, but—we can and have increased our productive capacity.

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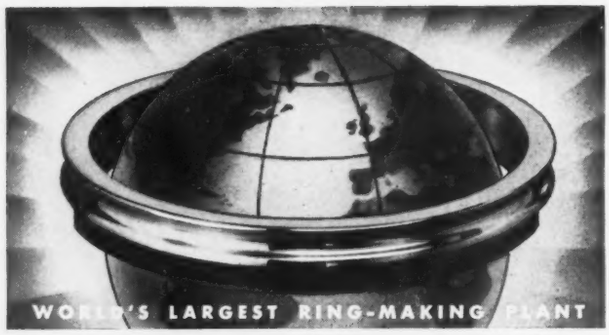

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The fate of the entire world now rests squarely upon American man power and American production efficiency. From our specialized point of view, we know that one quick, sure way for mills to add production is to replace worn rings on spinning frames and twisters with DIAMOND FINISH designs that give 10% increase in average cases, and on some operations boost production 25%, 50% and even more. Rely upon the World's Largest Ring-making Plant for competent counsel, swift service.

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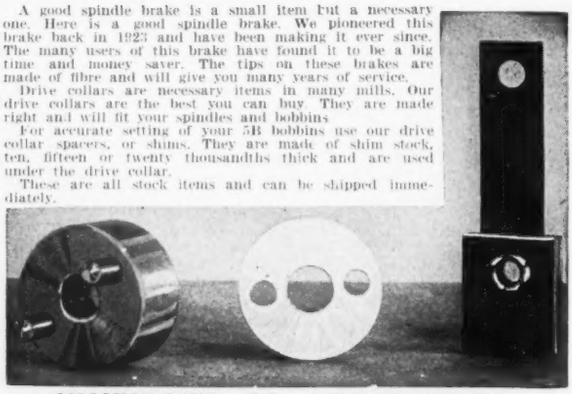
A good spindle brake is a small item but a necessary one. Here is a good spindle brake. We pioneered this brake back in 1923 and have been making it ever since. The many users of this brake have found it to be a big time and money saver. The tips on these brakes are made of fibre and will give you many years of service.

Drive collars are necessary items in many mills. Our drive collars are the best you can buy. They are made right and will fit your spindles and bobbins

For accurate setting of your 5B bobbins use our drive collar spacers, or shims. They are made of shim stock, ten, fifteen or twenty thousandths thick and are used under the drive collar.

These are all stock items and can be shipped immediately.



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Two exclusive Features Affording Long Life:

1. Automatic-bobbin holders equipped with holding wings electrically hardened all the way through.

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We make holders for ¾" to 2½" bobbin heads, including large-package wood and paper bobbins, also special bobbins. Duplex holders take both automatic and non-automatic bobbins.

Holders for all types of mules, frames, twisters, and winders.

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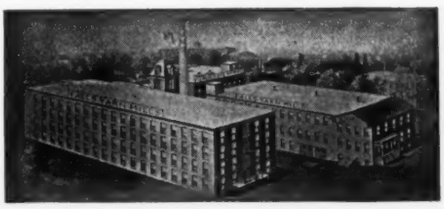
WOONSOCKET, R. I.

Incorporated 1904



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meet the need for Speed—
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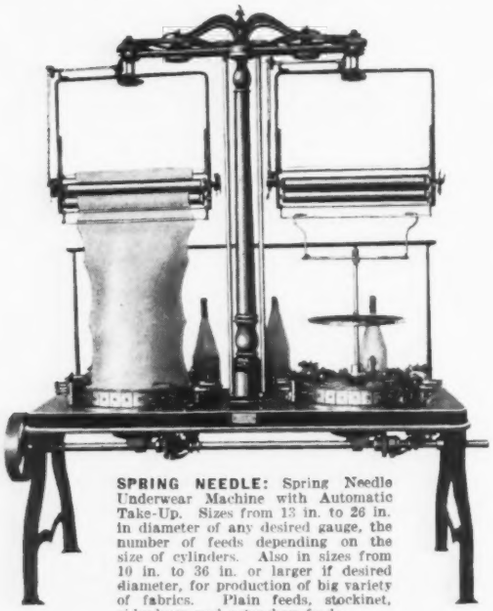

SPRING NEEDLE: Spring Needle Underwear Machine with Automatic Take-Up. Sizes from 13 in. to 26 in. in diameter of any desired gauge, the number of feeds depending on the size of cylinders. Also in sizes from 10 in. to 36 in. or larger if desired diameter, for production of big variety of fabrics. Plain feeds, stockinet, elderdown and astrachan feeds.

CRANE Knitting Machines meet the demands of rapidly changing patterns and styles. Their middle name is *versatility* . . . plus smooth, fast running operation that eliminates expensive stops. Among their exclusive features are Patented hardened Wing Burr Wheels and patented Thread Stop Motion. There's many a Knitting Mill in which batteries of Cranes are the mainstay of production.

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CRANE Improved Automatic
3 Colored

Improved Automatic 3 Colored Plain Stripes. Made in sizes from 7⅝ in. to 20⅝ in. inclusive, of any desired gauge. Measurements are back to back of cylinder needles. Knit fabrics for bathing suits, theatricals, athletic goods. Crawford stop motion applied when requested.

1870 **CRANE** 1942

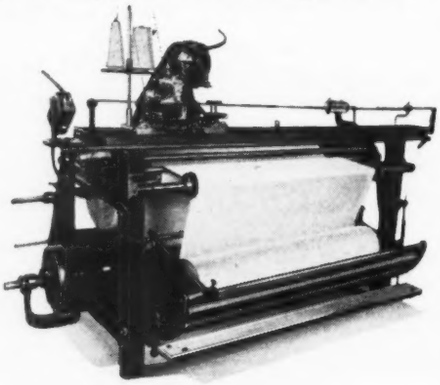
MANUFACTURING CO.
LAKEPORT, N. H.

Spring Latch Needle

KNITTING MACHINERY

NEW *Dinsmore*

Opening, Sewing and Re-rolling Machine



SHOWING the application of the Merrow Butted Seaming Head to our No. 4 Opening, Sewing and Re-rolling Machine . . . Produces a strong, flat butt seam on cotton, silk or other piece goods . . . trims off waste edges of goods just in advance of stitching operation . . . The Merrow Butted Seaming Head can be applied to your present machine . . . *write for estimate of cost.*

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Textile World
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machine and hand knitting

Yarns

[French-Bradford]

for

BATHING SUITS
OUTERWEAR
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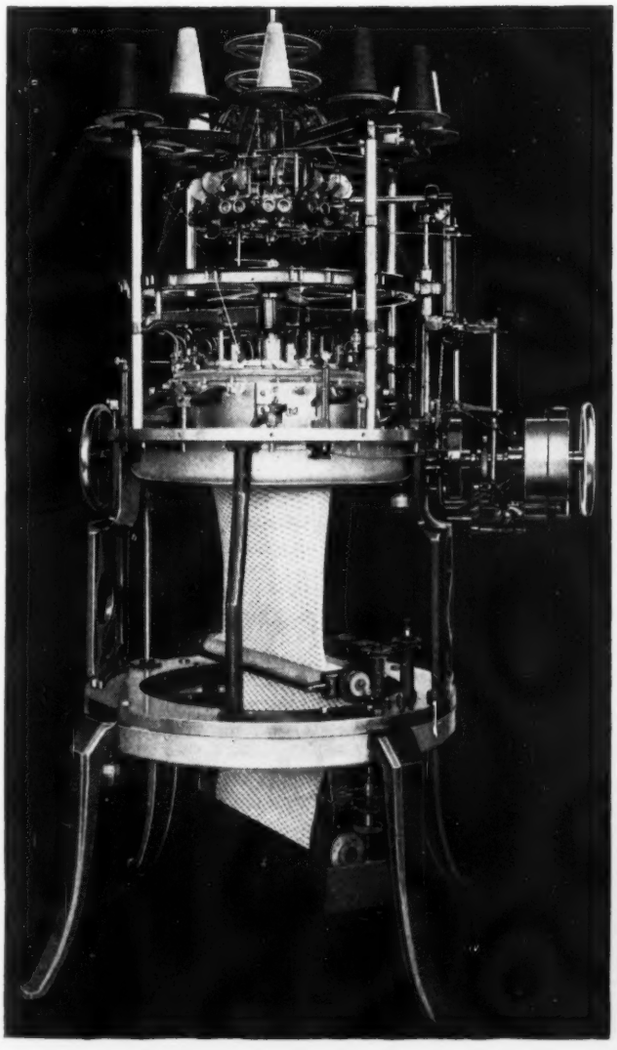
Complete color assortments

American Woolen Company

225 Fourth Avenue **New York**

—"tension"



The Wildman Interlock machine embodies a device that feeds yarn under UNIFORM TENSION—It is an exclusive feature and results in a finished product that is absolutely uniform in feel and appearance, a fabric so splendidly smooth that it is in great demand for sweaters, bathing suits, dresses, gloves and many other garments and accessories. A great variety of attractive patterns is possible. Send for complete details of this machine and some samples of its unusual product.

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Norristown, Pa.

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for seamless hosiery knitting

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UP-TO-DATE MACHINES

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FOR PRODUCING

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Sheet Metal Specialties to Order

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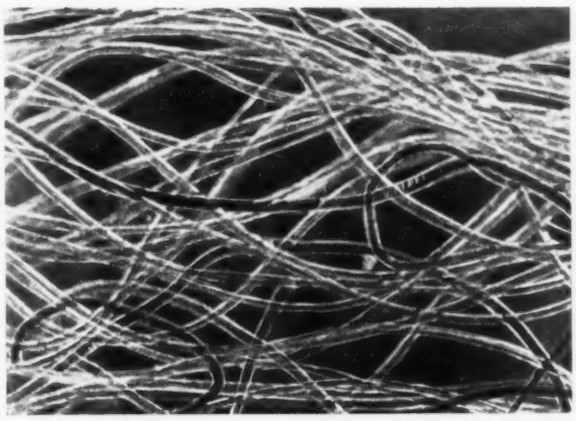
BLEND YARN DYEING Calls for Unusual Experience and Skill



Microphoto of new spun-rayon, wool and aralac blend yarn.

Globe has been widely known for more than three quarters of a century for unusual service in dyeing cotton yarns.

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Today Globe is equally well known for successful dyeing of rayon, spun rayon, aralac and nylon, or blends of any of these with wool or cotton.

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Consult Globe about your mixed yarn dyeing problems. Globe has the experience and equipment to solve them economically.

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Blister-Stitch
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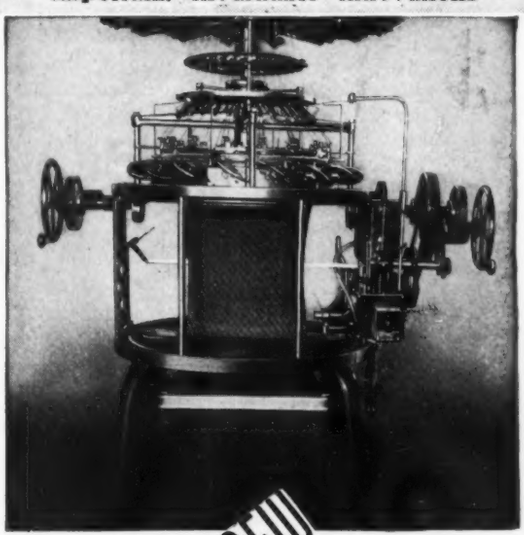
As Always—first to produce important, invaluable innovations



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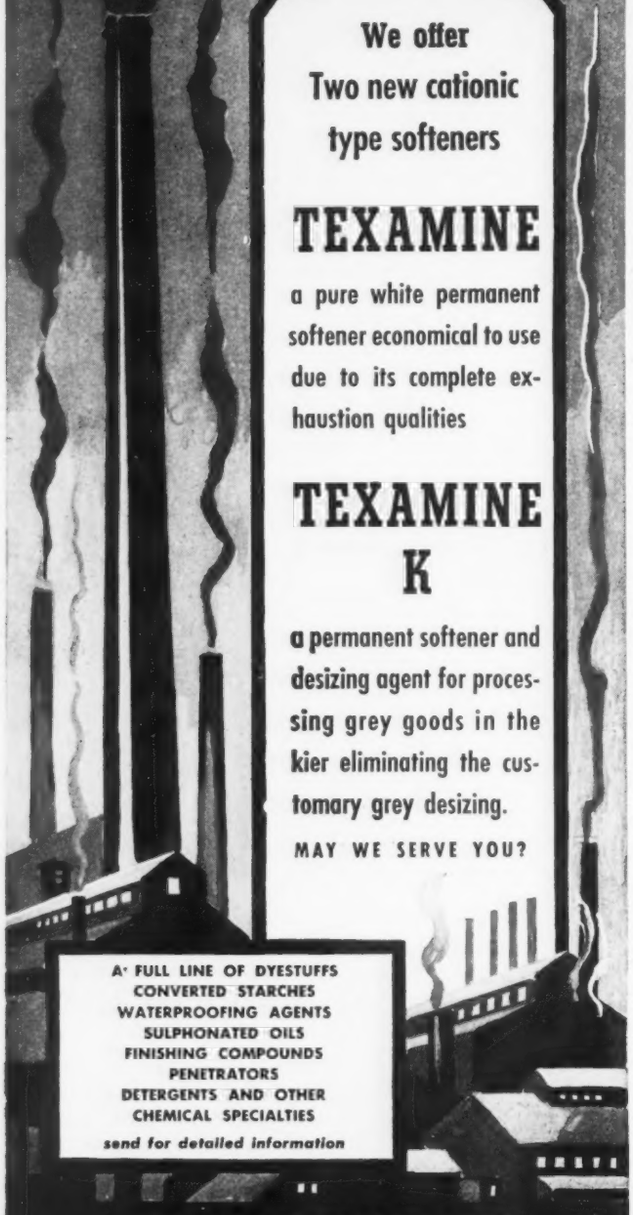

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a pure white permanent softener economical to use due to its complete exhaustion qualities

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THE PREFERRED DE-SIZING AGENT

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J. O. DRAPER CO.
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SAVE WITH IMPROVED WASHING ACTION

TRY a Metso Detergent on a stubborn cleaning job in your mill and see the difference. Take, for instance, back gray washing. Metso removes all the loose dyes and leaves the back grays soft and absorbent. Metso-washed grays last longer.

One outstanding function of Metso Detergents is the ability to prevent removed dirt from again depositing itself on the clean cloth. May we tell you more about this unique Metso advantage? No obligation.

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METSO DETERGENTS

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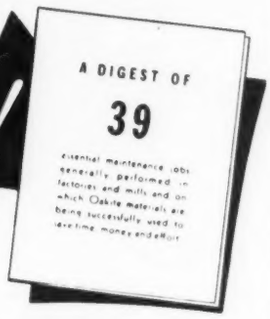

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Fig. 20

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TRUCKS
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for

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John:
Penick and Ford's Starches and Gums for sizing Corduroy warps insure dependable weaving and maximum cutting efficiency. Let's try the type they recommend. Jim

ARMSTRONG-BRAY
STEELGRIP
FLEXIBLE BELT LACING

ARMSTRONG-BRAY
STEELGRIP
FLEXIBLE BELT LACING

- 8 sizes boxed or in long lengths for wide conveyor belts. Best for rubber and fabric belts because it compresses belt ends and prevents fraying. Applied in a few minutes with a hammer. 2-piece hinged rocker pins.

Also, WIREGRIP Belt Hooks that fit any lacing machine. Immediate delivery on both types.

Write for Circulars

ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
5340 Northwest Highway
Chicago, U. S. A.

WE'VE LEARNED A LOT IN OUR 50 YEARS!

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

Let us tell you about our complete Caldwell service, which includes Stainless Steel-lined tanks and tubs—round, rectangular and special shapes. *Catalog on request.*

W. E. CALDWELL CO.
Incorporated
2060 Brook St. Louisville, Ky.

Caldwell TANKS AND TOWERS

ALL STEEL
ECONOMY BALING PRESSES
ALL SIZES FOR ALL PURPOSES
LARGEST LINE BUILT IN U.S.A.
ECONOMY BALER CO., DEPT. J ANN ARBOR, MICH., U.S.A.
REPRESENTATIVES:
New York Office: 100 Gold St.
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Other Sales and Service Branches in most Important Cities.

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:

10 cents a word, minimum charge $2.00.

(See ¶ on Box Numbers.)

POSITIONS WANTED (full or part-time salaried employment only), ½ above rates.

PROPOSALS, 50 cents a line an insertion.

INFORMATION:

BOX NUMBERS in care of any of our New York, Chicago or San Francisco offices count 10 words additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

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The advertising rate is $5.75 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. T.W.

NEW ADVERTISEMENTS received by 10 A. M. April 24th will appear in the May issue, subject to limitations of space available.

Over Forty Years of Dependable and Confidential

EMPLOYMENT SERVICE

for textile mills, converters and selling houses requiring managers, superintendents, stylers, designers, salesmen, overseers, second hands, fixers, etc. 'Phone, wire or write us your personnel requirements.

CHARLES P. RAYMOND SERVICE, Inc.

Phone: Liberty 6547 **294 Washington Street, Boston, Mass.**

POSITIONS VACANT

EXCELLENT OPPORTUNITY! For man with creative ability, to take charge sample making, cost calculation novelty twisted yarns. State experience and salary desired. Replies treated confidentially. Reply to P-64, Textile World, 330 W. 42nd St., New York, N. Y.

EXPERIENCED DESIGNER wanted. Longlife Elastic Mfg. Co., Inc., Haverstraw, New York.

To EMPLOYERS who advertise for MEN:

WHEN there are many applicants for a single position it frequently happens that the only letters acknowledged are those of the most promising candidates. Others may not receive any indication that their letters have even been received by a prospective employer much less given consideration. These men often become discouraged, will not respond to future advertisements, and sometimes even question their bona fide character.

We guarantee that *every advertisement printed in the Searchlight Section is duly authorized.* It will help to keep our readers interested in this advertising if you will acknowledge every application received, even if you merely return the letters of unsuccessful applicants with, "Position filled, thank you" written or stamped on them. If you don't care to reveal your identity, mail them in plain envelopes.

We suggest this in aspirit of cooperation between employers and the men replying to Positions Vacant advertisements.

★

Departmental Staff

McGraw-Hill Publishing Co., Inc.

POSITIONS VACANT

EXPERIENCED, capable, energetic boss carder wanted for 13 set mill in Connecticut with ring doffers. Salary $275 per month. Apply P-110, Textile World, 330 W. 42nd St., New York, N. Y.

POSITIONS WANTED

SUPERINTENDENT OR OVERSEER OF WEAVING. 44 years old. Scotch-Irish descent. 28 years experience as a practical mill man on all models of Drapers, Dobby, plain, Satin and linings, Rayons, Acetates, etc. Expert loom man, also warp preparation, slashing, winding, etc. Thoroughly understand the operations of every department. At present employed as an executive, but desire to make change. Will go anywhere, and can furnish the best of references. PW-84, Textile World, 330 W. 42nd St., New York, N. Y.

WARPER FILLER drawing in and Slasher Supervisor American looks for position in Silk Rayon and Acetate either Broadsilk or Ribbon. PW-102, Textile World, 330 W. 42nd St., New York, N. Y.

PLANT ENGINEER, Plant and Mechanical Engineer; 46 years old, formerly employed for 20 years with one of the largest Textile companies in this country, College Graduate, can furnish the best of references. PW-115, Textile World, 330 W. 42nd St., New York, N. Y.

EXECUTIVE employed, with many years allround experience, Office, Systematizing, Calculation, Manufacturing, Machinery, etc. desires position with Underwear, Hosiery, Sweater, Bathing Suits or Outerwear Mill. PW-111, Textile World, 330 W. 42nd St., New York, N. Y.

YOUNG MAN 28 years old experienced both technically and practically in Cotton Spinning, Winding and Warping, desires position as Overseer of Spinning. Thoroughly understand and can handle "War time help" I.C.S. graduate on Carding and Spinning. Prefer Southern locality. Sober and really interested in textile field. Best of references furnished. PW-106, Textile World, 330 W. 42nd St., New York, N. Y.

YOUNG MAN, 26, graduate of textile college, now employed, wishes to change position. Experienced in cotton, rayons, woolens, and worsteds. Will consider office or mill work. PW-112, Textile World, 330 W. 42nd St., New York, N. Y.

ASSISTANT SUPERINTENDENT 49, 20 years experience knowing perfectly french Drawing, Worsted Mules, frames, like to change, same position or overseer. PW-113, Textile World, 330 W. 42nd St., New York, N. Y.

SUPERINTENDENT now employed seeks change. College graduate. Age 38. Married. Experience in carding, spinning, weaving. Also dye and bleach. Familiar with various types fabrics from ducks to fancies. Can handle help. Specialized in cost and production. Would like interview. Will work East or South. References. PW-114, Textile World, 330 W. 42nd St., New York, N. Y.

WANTED

COTTON MILL WANTED. Large Bag Manufacturer interested in leasing or buying control or entire modern Cotton Mill or arranging toll proposition. Also interested in bleaching proposition. Answer in detail; everything confidential. P. O. Box 690, New Orleans, La.

For Sale

BRAIDING PLANT

for defense work

Large assortment of Braiders and winding equipment necessary to operate immediately.

Reply To

FS., 109 Textile World

330 W. 42nd St., New York City

Woolen Mill Available

30 loom

Dye house and cards

For sale or rent or will work on commission.

BO-97, Textile World

330 W. 42nd St., New York City

WANTED

WANTED SECOND HAND LOOMS

50 Cotton Looms "Draper", 48" inside Width, 2, 3, & 4 Harnesses

50 Shuttle Changing Box Looms 4 x 1, 48" 2, 3, & 4 Harnesses.

50 Dobbie Looms "Draper", 48" 20 Harnesses

30 Dobbie Looms "Draper", 80", 20 Harnesses.

Fully automatic preferred

Each loom to be provided with four warp beams and motor, 220 volts AC, three phases, 60 cycles

W-116, Textile World, 330 W. 42nd St., N. Y. C.

Wanted and For Sale

ELASTIC YARNS

Small or large lots. All sizes.

I. B. SILK CORP.

315 W. 36th St. **New York, N. Y.**

PROFESSIONAL SERVICES

LANCASTER, ALLWINE & ROMMEL

Booklet—"General Information Concerning Inventions & Patents" and "Free Schedule" sent without obligation.

Established 1915

Patents—Copyrights—Trade-Marks

Suite 448, 815—15th St., N.W., Washington, D. C.

HOSIERY MACHINERY—FOR SALE

Men's Hose Machines

18—Banner Wraps 3½" 240n 19 step serials 89000, stripers.
18—Standard 80W Wraps, 25 step with stripers. 3½" 240n.
3—Standard 80W Wraps 3½" 160n 25 step, with stripers.
26—S&W HH's 3½" 220n 48ga. plain.
54—S&W B5's 3¾" 128n 24ga. with stripers, new style, with G top type rubber attachments. Can be converted to G tops.

Over 800 assorted Banner and S&W men's machines in stock.

12—Spiers 4½" 120n English Rib machines.
13—S&W Komets 3½" 200n 2 feed, serials 10300.

Ladies' Hose Machines

45—S&W Model K 3½" 300n 70ga. with cradle sole etc. etc.
50—S&W Model K 3½" 260n, as above.
25—S&W Model K 13 Step Spirals 3½" 240n 54ga. with stripers and double feed. Ideal for Mesh.
60—Banner Nib Jacks 3½" 300n 70ga. high cylinder, mesh attachments.
70—S&W 4½" 380n T Top machines for making ladies F F welts, etc.
35—S&W Model K 3½" 300n, 70ga. 25 step, 48 rack, #250,000.

These are but a few lots, selected at random, from our stocks.

Children's Hose Machines

50—Banner from 2¼" 110n to 3¼" 150n 36ga. plain.
7—Standard H's including 5 machines 2½" 130n 48ga. and 2 machines 2¼ 120n 48ga.
75—S&W Model B3's from 2½" 116n to 3¼" 172n 48ga., in various needle counts.
60—S&W Model RI's from 3" to 3¾" with stripers. Send for details.
12—Banner Diagonals 3" and 3¼" diameter, with stripers.

Write us your requirements for children's knitters and ribbers.

RIBBERS — RIBBERS — and More Ribbers

Sorry you broke up those Ribbers a few years ago—Well so are we—but we still have about nine hundred excellent units left—so write us your needs.

Loopers

20—Sotco 26 point Loopers with chain clippers. Nice shape.
35—Wright SD 14 point Loopers with clippers.
1—Wright 18 pt. with Sotco ring.
1—Wright 20 pt. with Sotco ring.
1—Hepworth 22 pt. complete.
7—Hepworth 17 pt. complete.

We also carry a number of good used looper rings in various counts.

Seamers

14—Merrow 60S and 60UD Seamers serials over 50,000. Good shape.
8—Merrow 60S machines rebuilt units.
50—Union Specials 41200A class serials over 200,000.

Extractors

1—Fletcher 40" late type, open top, underslung motor drive, safety cover, etc. A real Buy.
1—Fletcher 30" late type machine motor driven. Safety cover.
2—Troy 30" Curb Extractors, underslung motor driven.
1—American 48" Humatic Extractor, 3/60/220v. motor driven.
1—Troy 26" Belt driven Curb Extractor.

With over 30 extractors in stock, we welcome your inquiries.

Dye Machines

1—Smith Drum 25 lb. 4 pocket Rotary all monel, motor driven.
1—Strickland 50 lb. Paddle, 2 compartment monel cover, motor driven.
1—Rochester 25/40 lb. motor driven all monel Paddle dye machine.
1—Am. Laundry 150 lb. 6 pocket Rotary all monel arranged for motor drive.
1—Strickland 10 lb. all monel Paddle dye machine, motor driven.

Boarding Forms

Send for list of Paramount and Philadelphia forms. Better still, write us your requirements.

We also have a large stock of cylinders, disks, needles available in many sizes and gauges.

Everything from Needles to Complete Plants

MORRIS SPEIZMAN

508—14 W 5th St. **Phone 2-3463** **Charlotte, N. C.**

WHAT "MLC" SERVICE means to you . . .

SATISFACTION

many plants are considering used equipment today not for lower costs but for the saving represented by securing needed machinery at once! To such "new buyers" we justifiably boast of our hundreds of satisfied customers.

RELIABILITY

16 years of straight-forward operation in the redistribution of used textile machinery and the fine record of performance from every "MLC" installation have created the best goodwill a firm could enjoy. We're proud of it!

IMMEDIATE DELIVERY

the increased burden on textile production facilities has naturally created heavy demands for equipment, "MLC" is geared to "war-speed" service and guarantees quick delivery of the equipment offered.

FREE COUNSEL

we're eager to help you solve your production problems. Call on "MLC" for advice concerning the fast location of dependable, serviceable textile machinery. Our entire energies are yours to "Keep 'Em Rolling"!

OUR PRESENT STOCK

includes the following

Used Textile Machinery

1—42" King & Gerber 3 roll Calender with 3/60/220 v. motor.
1—48" Farmer 6-bowl Calender
1—50" Van Vlaanderen 3-roll Calender
2—sets 3-cyl. Furbush Woolen Cards 48"x60" camel back feeds Barker condensers
1—60" V V Doubling, Tubing & Measuring Mche.
1—set of 10 Textiles 23"x60" Dry Cans, vertical frames
1—150 yd. Kenyon Return Tenter Dryer 65" opening
2—84" Proctor & Schwartz Loop Dryer
1—Hurricane Loop Dryer, 7'8" wide x 34'2½" long x 6'3½" high, inside dimensions
4—4000 gal. C.I. Chain Warp Dye Vats, Butterworth & Textile Fin. Mchy. Co.
1—20 lb. Rochester All Monel Metal Pocket Rotary Hosiery Dyeing Mach. mtr. dr.
1—56 Arm Mayoux Skein Dyeing Machine driven with monel and copper tanks
1—30" Hercules motor driven Extractor
1—40" Tolhurst, copper basket Extractor 3/60/220 v. mtr.
2—42" Hercules, Stainless Steel Baskets, V-Belt, mtr. dr. Extractors, Timers, Safety covers.
1—60" wide, 3-cyl. 30" dia. Garnett, automatic.
3—Schultz Fulling Machines
2—Bahnson Humidifiers with 3/60/220 v. mtrs.
35—S&W Mod. K Knitters, 48 gge. 3" to 3½" 160 to 220N. with attachments
96—42" Draper Model K Auto. Looms, 20 h. mtr. dr.
21—56" C & K 4x4 Box Looms with 600 hook Jacq. Hds. belt driven
18—56" Eastwood 1x1 Looms with 600 hook Jacq Hds. belt driven
12—72" C & K (4x4) Tapestry Looms with 1300h Jacq. mtr. dr.
30—82" C & K 4x1 Auto Looms 25 harness mtrized.
3—92" C & K 4x1 Box Automatic Looms, 20 harness head, warp stop motion, mtr. dr.
10—92" C & K 4x4 Box Looms
100—92" Draper Model L automatic Looms, belt driven
4—120" C & K (4x4) 25 harness Looms
1—65" Van Vlaanderen Palmer
1—50" Morrison Triune Finishing Mach. Quetch Palmer Tenter
1—66" V. V. Palmer Quetch Unit
1—67" Morrison Palmer with 2-roll Quetch
2—1-65"; 1-66" Rotary Cloth Presses
1—8 color Van Vlaanderen Ribbon Printer
1—42" Rice, Barton & Fales, 7-color Prtg. Mche., Dry Cans, etc.
1—43" Rice, Barton & Fales 8 color Prtg. Mach., Dry Cans, etc.
1—54" Textile Mach. Co. 8 color Prtg. Mach. complete with 2—G.E., 35 HP mtrs.
1—52" Waldron 12 color Printing Mach., complete with Westge slip ring, motor, 50 HP.
2—20 Sp. ±90 Universal Quillers No Bunch Builders without motors
19—144 Sp. Saco Pettee 8x4 Roving Frames
1—78" P & W Model A, 2-blade Shear
2—60" Smith & Furbush Shredders
1—Saco Lowell 2 cyl. slasher & warper, 1919
1—66" Johnson 5 cyl. Slasher (cotton system)
1—Saco Lowell Slasher, 58" face, wi Size Box
1—90' W. & J. Clip Tenter 50" mtr. dr.
1—Pair of 60" Squeeze Rolls
3—28 Sp. F&J Novelty Twisters with mtrs.
150—128 Sp. Fletcher Dble Deck Upstroke Twisters, 7" Sp. spacing, equip. with 2-3 HP mtrs.
8—192 spindle Whitin Wet Twisters 2¾" gge.
7—160 Sp. Collins Double Feed Roll Novelty Yarn Twisters, motor driven
7—18 Sp. Oswald Lever Bottle Winders, mtrs.
1—80 Sp. Foster Model 12 Tube Winders with Drive Shaft Motor
1—40 Sp. Lindsay Hyde Coreless Cop Winder

•

Write, wire or cable your requirements today

•

MACHINERY LIQUIDATING CO., INC.

Over 15 years in textile mill machinery

31-33 W. 42nd ST. MLC **NEW YORK, N.Y.**

Cable Address "Liquidate," N.Y.

INSPECTORS — APPRAISERS — LIQUIDATORS

SEARCHLIGHT SECTION

NORMAN M. McDOWELL
ASSOCIATES

342 E. 142 St. **Bronx, N. Y.**

LIQUIDATIONS & APPRAISALS

FOR SALE

1—50" **Van Vlaanderen** 3 roll, **Calender** motor driven.
1—47" **Granger** 5 roll, **Calender** with 3 roll Mycock Expander.
1 **Semi-Decatur P&W** 72"x12" diameter, #2 Nash Pump and Motor.
1 **Hurricane Vacuum Extractor** 66" wide with L6 Nash Pump and 2 motors, silent chain drive.
3 **Hydro-Extractors** 42" to 48" Copper Tinned basket, motor driven.
5 **Quetches** 44" to 67" 2 and 3 roll units.
1 **Butterworth** 20' x 66" wide Pin Tenter Frame, double row Stainless Steel Pins, motor driven.
1 **W&J** 60' x 52" wide **Tenter Frame** Spring type Double Acting Clips.
4 **Woonsocket D.A. Nappers**, 20 roll, 80" wide, self oiling type.
7—**C&M** and **P&W** Single & Double Blade **Shears**, 60" to 76" wide some with List Savers.
2 **D&F** Knit Goods **Nappers**, 20 rolls, 80" & 90" wide, one with turning arms for Tubular goods.

Also: **DOUBLERS, FOLDERS, CLOTH WINDERS, NAPPER GRINDERS, EMBOSSING CALENDERS, DRYERS, LOOMS, BRUSHING and MEASURING MACHINES.**

ONLY A PARTIAL LIST

Send us a list of your requirements

Let us SELL your SURPLUS MACHINERY NOW

LIQUIDATING
EXCELLENT FINISHING EQUIPMENT
COTTON—RAYON—WOOL

Special Offering—$100,000 Modern Water Softening & Filtration Equipment, including:
5—Permutit 10' x 10' Vertical and 9' x 15' Horizontal Water Softeners.
7—Hungerford & Terry 8' x 20' Water Filters.
Large quantity Zeolite, Water Pipe, Meters, Tanks, and etc.

500—**Copper Print Rollers**, 15" to 19" Circ.
13—**Print Machines**, 42" to 64" six to ten colors.
4—**Agers** 12' to 24'.
1—**Engraving Shop** Pantographs and Millers.
10—**Copper Colour Kettles**, 40 to 100 gallon.
1—**Werner** 50" one **Colour Print Machine.**
1—**V.V.** 3 roll **Print Padder.**
1—**Windsor and Jerauld Mercerizing Range.**
3—**Open Soapers**, 80"-100", Rubber Nip Rolls.
20—**Copper Can Dryers**, 50" to 120".
4—**Tenter Frames**, 40', 50', 60', 90', all stainless Steel Clips.
10—**Mangles & Padders** 50" to 90".
1—**Butterworth Copper Can Dryer**, 16 Cans, 60" Diam. 72" Face, Horizontal Stack.
1—**Proctor & Schwartz Loop Dryer.**
24—**Dye Jiggs.**
1—**General Machine Palmer Unit.**
2—**V.V.** 50" **Button Breakers** Brass Rolls.
2—50" 5 Bowl **Textile Calendars.**
2—**Textile Hydraulic Schreiner Calendars.**
1—**V.V.** 60" **Beamer and Rolling Up Machine.**
8—12' **Dye Becks.**
2—**Parks & Woolson** 54" **Doublers.**
2—48" **V.V. Copper Basket Extractors**, A. C. Motor.
1—60" **Hercules Rubber Basket Self Balancing Extractor** A.C. Motor.
2—**Continuous Boil-off Units.**
1—**Tolhurst** Open Top 48" **Extractor**, Copper Basket.
1—3-roll 80" **Mangle**, Rubber Rolls.

Misc. Folders, Tubers, Quetches, Dry Cans, Washers, Dye Becks, Mangles, etc. This is a good market to dispose of your surplus and inefficient equipment. Send us your list for prompt action.

REPUBLIC TEXTILE EQUIPMENT COMPANY, Inc.
40 Worth St. **Phone Worth 2-4583** **New York City, N. Y.**

WE OFFER FOR SALE

New SILVER KING 12" x 36" Vulcanized Fibre Roving Cans in quantity lots.

33—DRAPER TWISTERS, 200 spindles each. 3" gauge. 2¼" ring. tape driven; equipped with separators—1922-1924 model. Excellent condition.

A. F. FYANS
Textile Machinery
P. O. Box 454 Fall River, Mass.

FOR SALE

- **Printing Machines**
- **Dry Cans**
- **Calenders**
- **Quetches**
- **Extractors**
- **Tendering Frames**
- **Beamers & Tubers**
- **Doubling & Folding**

Looms—Warpers—Winders—#90 & #50 Universals
Ribbon Machinery & Equipment

A. & M. BLANK CO., INC.
49 STATE STREET **PATERSON, N. J.**
Sherwood 2-1367 **Lambert 3-9523-0275**

FOR SALE

1—**Saco Lowell Hot Air Slasher**
1—3 Cylinder **Woolen Card** 60x48 **Tape Condenser**
5—**Johnson & Bassett H'vy Pattern Mules**
1—**Columbia-Green Single Acting Napper**
3—**D&F Dressing Frames**
New oil circuit breakers, recording watt-meter

MODERN WOOLEN MILL EQUIPMENT & SUPPLIES

including 2 International Business Machine Time Clocks, Stock & Piece Dye Kettles, Loom Supplies and Electrical Supplies, Pulleys, Shafting, Belts, etc.

WOOL WASTES, RAGS AND CLIPS

HUDSON RIVER WOOLEN MILLS
420 Madison Avenue **New York City**

HARRY STEPHENSON
IMPORTER, DEALER AND MANUFACTURER
TEXTILE MACHINERY AND APPLIANCES
NEW AND USED
River Works, Andover, Mass.

HOSIERY EQUIPMENT
USED OR REBUILT
Knitters: Ribbers: Loopers: Seamers: Boarding: Dyeing Full Fashioned Hosiery Machines
Special attention to export trade
C. M. FRENCH
Commercial Trust Bldg., 15th & Market St.
Cable: Frenchtex-Philadelphia Philadelphia, Pa.

JOHN J. McCLOSKEY, Inc.
MANUFACTURERS AND DEALERS
TEXTILE MACHINERY OF ALL TYPES
APPRAISALS WOOLEN—WORSTED—COTTON LIQUIDATIONS
NEW AND USED
Philadelphia Office: 140-142 So. Front Street. Factory Warehouse: Collingswood, N. J.

TEXTILE MACHINERY
USED OR REBUILT
Spinning—Weaving—Dyeing Finishing—Hosiery Knitting
Specialists in Export Trade
S. B. SCHWARTZ
LIQUIDATIONS
1050 Constance St. New Orleans, La.
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Standard Mill Supply Co.
USED TEXTILE MACHINERY and SUPPLIES
For over 45 years serving domestic and export customers.
1064-90 MAIN ST., PAWTUCKET, R. I. 512-14 W. 4TH ST., CHARLOTTE, N. C.

GAINES TEXTILE MACHINERY CO.
Dealers in Rebuilt and Guaranteed Yarn Winding and Spinning Machinery
141-45 West 17th Street **New York, N. Y.**

FOR SALE

1 **Tolhurst** 44" Belt Driven Extractor
1 **Dodge Shoddy Picker**, B. B.
2 **Saco-Lowell Shoddy Pickers**, B. B.
80—86" **Draper Automatic Worsted Looms**, M. D.
2—66" **P. & W. Cloth Doubling Machines**

J. H. WINDLE & COMPANY
Tel. Gaspee 6464
231 So. Main St. Providence, R. I.

—EXTRACTOR—
All Makes EXTRACTORS **All Sizes**
also Ironing, Washing and Drying Machinery.
Immediate delivery. Call or write
WILLIAMS LAUNDRY MACHINERY CO., Inc.
3913-15 22nd St. Long Island City, N. Y.
Stillwell 4-3715

UNDERWRITERS FIRE PUMPS
5—1,000 GPM Centrifugal Fire Pumps with AC motors either 220-440-2200v.

TIDEWATER EQUIPMENT & MACHY. CORP.
305 Madison Ave. **New York, N. Y.**

Two Best Buys!

U. S.

DEFENSE BONDS and STAMPS

and

"CONSOLIDATED"

TEXTILE EQUIPMENT

PRINTING MACHINES

2—Rice, Barton & Fales 10-Color 64" Print Machines, complete.
1—Rice, Barton & Fales 8-Color 64" Print Machine, complete.
1—Rice, Barton & Fales 8-Color, 40" Print Machine, complete.
1—Rice, Barton & Fales 8-Color 40" Print Machine, complete.
1—Rice, Barton & Fales 3-Color, 42" Print Machine, complete.
Print Machine accessories including color pans, mandrels, star gears, furnisher gears, bearings, etc.

AGER

1—Cast Iron Vat Ager, 4'-9" wide, 7'-6" high, 18' long.

STEAMERS

2—Steamers, 8" dia., x 20" long.
1—Devine Steam Jacketed Steamer, 5' dia., x 11' long.

KETTLES

1—Textile 200-Gallon Copper Jacketed Tilting Agitated Kettle.
2—Textile 100-Gallon Copper Steam Jacketed Tilting Agitated Kettles.
2—Textile 70-Gallon Copper Steam Jacketed Tilting Agitated Kettles.
3—Textile Copper Steam Jacketed Tilting Agitated Kettles, 50, 40 & 30 gallons.

PRINT PADDER

1—3-Roll Print Padder, consisting of Drying Tower with Unit Heater.

3200 Standard W-Bore Copper Print Rollers With Designs, 28" to 48" in length, 14" to 20" in circumference.

COLLOID MILLS

1—Charlotte Homogenizer or Colloid Mill.
1—10" Premier Colloid Mill.
2—5" Premier Colloid Mills.

FORCING JACKS

2—Mandril Jacks.

DYE JIGGS

1—Battery of 4—Butterworth Stainless Steel Lined Dye Jiggs, 45" face.
4—Lincoln 50" Dye Jiggs.
3 V.V. 50" Monel Lined Dye Jigs.

OPEN WASHERS—BOIL-OFF

2—Textile 8-Bowl Full Width Open Washers, rubber on brass rolls.
1—Textile 3-Nip Grey Washer, 65" rubber on brass rolls.
1—3-Knit Open Seater 50" rubber and brass roll.
1—Textile Continuous Full Width Boil-Off Unit, with stainless steel conveyor.

ROPE SOAPERS

2—Rodney Hunt 10' Rope Soapers.

SHEARS

1—Parks & Woolson Double Blade Shear, 66", with list saving device.
1—Parks & Woolson 3-Blade Shear, 60½" with list saving device.

EXTRACTORS

2—Van Vlaanderen 60" Rubber Lined Basket Extractors.
1—50" Copper Basket Extractor, under driven Centrifugal machine, complete.
10—48" Extractors, Burkhardt, Van Vlaanderen, Fletcher, Tolhurst, and Haring & Stephen; copper and rubber lined baskets.
2—Tolhurst 44" Extractors, Copper Lined Baskets.
1—King & Gerber 42" Extractor, copper basket, self-balancing type.
10—Self balancing Extractor, Tolhurst, American, Laundry, Adams and Troy, copper lined basket, 40", 32", 28", 26" and 20".

CALENDARS

1—Morrison ball bearing Calender.
1—Textile 5-Roll Chasing Calendar, equipped with 10-brass rolls.
2—Butterworth & Textile 2 and 3-roll Calendars, 40" and 50" in width.
3—Butterworth Textile 42" 2-Roll Hydraulic Schreiner Calendar.

LOOP DRYERS

3—National Loop Dryers 28', 33' & 65' long.
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1—Kenyon Pin Tenter Dryer 72".

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10—Klauder Weldon Skein Dyeing Machines 20, 28, 30 sticks, Hoist type.
1—Obermeier Package Dyeing Machine.

FULLING MILLS

6—Rodney-Hunt Fulling Mills, Gear Drive.

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2—Parks & Woolson Model E. Doubling Reeling and Measuring Machine.

FLAT FOLDERS

6—Elliot & Hall Flat Folders, with airlift table attachment.
3—Curtis & Marble Flat Folders.

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1—Van Vlaanderen Button Breaker, Brass Rolls.

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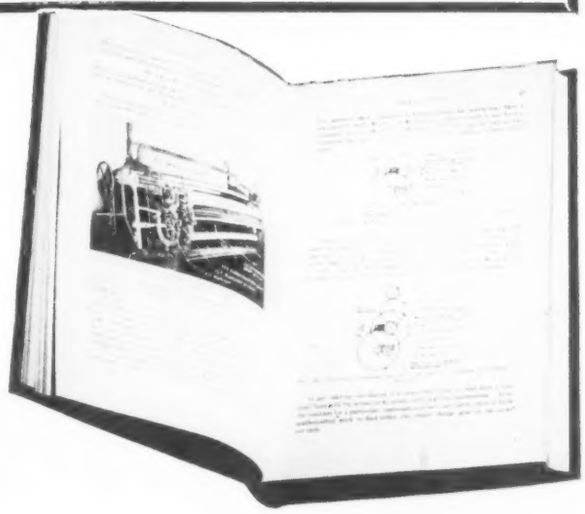

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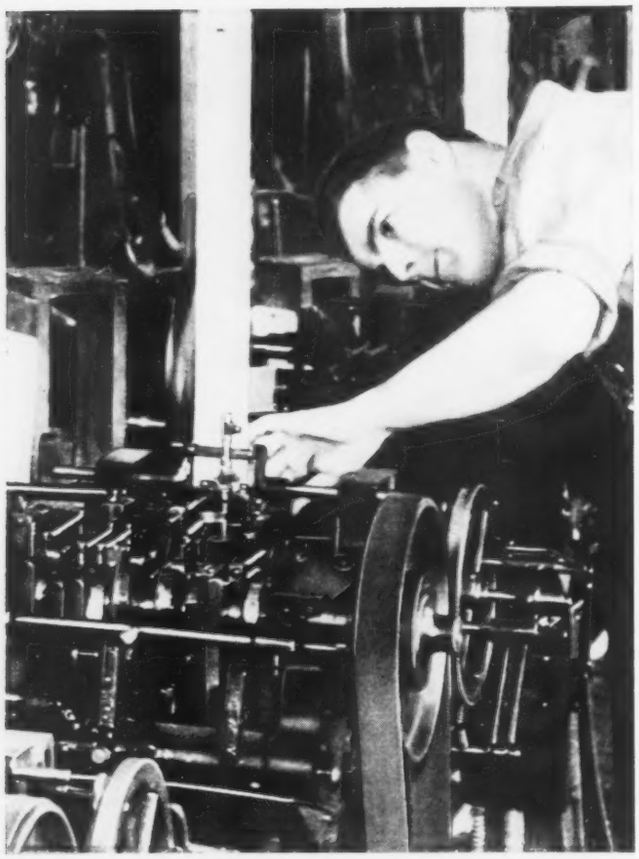

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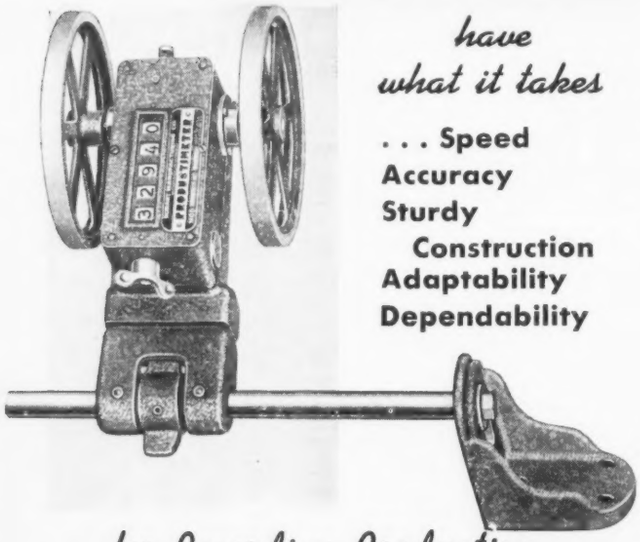

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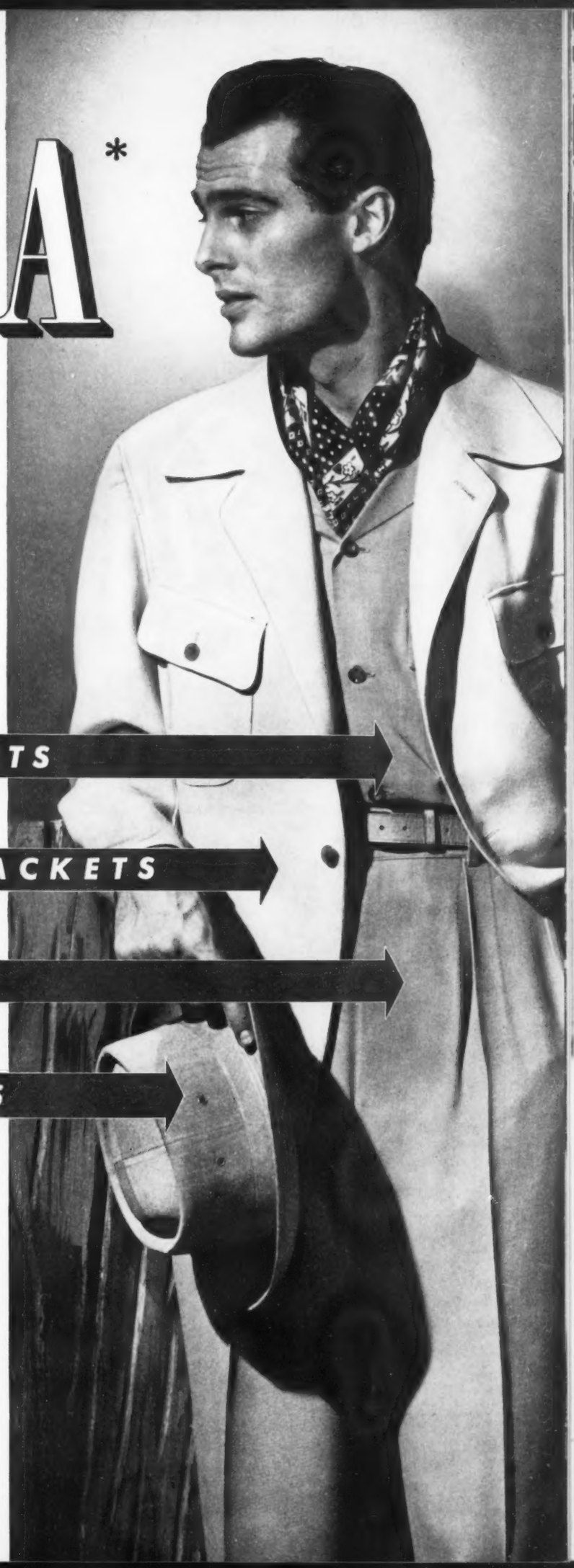

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